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American Aviation

The Independent Voice of American Aeronautics **JUNE 1, 1945**

Green Signal Teasers

Fortnightly Review

IT IS ALL WELL AND GOOD for the War Production Board to give what amounts to a slightly tinted green signal to the aircraft manufacturers to move into the commercial transport field, but until there is a realistic coordinated approach by all Washington agencies toward aircraft reconversion the green signal is merely a teaser and not a real go-ahead.

If one were inclined to be as wistfully fanciful as many of the outpourings of Washington officials, one might even suspect the Machiavellian touch to the recent WPB lifting of controls. But that would be giving credit for cleverness which obviously doesn't exist.

It was with interest that we read the announcement that the automobile industry would begin producing automobiles this year—probably 200,000 of them before the end of the year. This is fine—for the automobile industry. Its engineering is all an accomplished fact. A small percentage of engineers have been kept on commercial work for a long time, and the reconversion can be performed in short order. Result will be employment and a needed consumers' product.

But the aircraft manufacturers are strictly behind the 8 Ball in a big way. We don't know how much time it takes to engineer an automobile, but even if it takes a long time the fact remains that the automobile engineering is all done. But for commercial aircraft the time required runs into many months—about a year and a half on the average.

The Government is going to want employment kept at the highest possible level. The peak of the military plane production has passed. Cutbacks have been underway. But the airplane

(Turn to page 6)

Promoted by Republic

C. Hart Miller, who has been vice-president and Farmingdale division manager of Republic Aviation Corp., has been appointed executive vice president and general manager of the corporation. He has been with Republic since 1935.

With This Issue American Aviation Marks the Eighth Anniversary of Its Leadership in the Independent Reporting of Aviation News

Trend of the News

Big Route Decisions: Final decision in the awarding of air routes across the North Atlantic is one of the important news events on the calendar of the aviation industry, largely because of the policy decisions involved.

During the past fortnight, the North Atlantic case was in the hands of the Budget Bureau in Washington which was required to pass upon the costs involved, but which also was loaded down with work on numerous appropriation bills going through Congress—and which took precedence over the CAB matter. In regular procedure, such cases go to the President for final decision and signature—along with CAB and Budget Bureau recommendations.

In a West Coast interview last fortnight, CAB Chairman L. Welch Pogue indicated that so far as CAB is concerned two of four decisions in the foreign field—the North Atlantic and Latin American cases—were then ready for action.

Decisions on feeder and local route applications may start coming out shortly after July 1. They will not be slowed down by the lengthy procedure necessary in handling international route cases. Pogue indicated that West Coast regional and feeder route decisions might be reached by Fall.

Government Coordination: The question of coordination of Government policy on aviation matters where two or more agencies are involved is recognized in the creation of a new Interdepartmental Air Coordinating Committee with offices in the Commerce Building. It supersedes the old interdepartmental committee which under the chairmanship of A. A. Berle first tackled the job of developing a coherent Government policy on international aviation some two years ago.

Reviewing all problems as they come along, this Committee will recommend "integrated policies" for actions by the governmental departments concerned and by the President. The State Department's Aviation Division will have close liaison with the group. The setup gives the aviation industry a place to take its problems and thresh out its plans.

Chairman of the Interdepartmental Committee is William L. Clayton, assistant secretary of state for economic affairs. Robert A. Lovett, assistant secretary of war for air; Artemus Gates, assistant secretary of navy for air; and William A. M. Burden, assistant sec-

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25c

On the eve of what we believe will be an increasing impetus to the air drive in the Pacific, due to operation in rapidly growing numbers of our new Thunderbolt...the P-47 "N", it seems uniquely fitting that we pay tribute to that stout-hearted group who have kept the flag at the masthead.

From the moment of that sneak punch at Pearl Harbor...through the suicide raid of doomed Torpedo "8" which turned the tide at Midway... in an ascending scale of brilliant victories...the Marshalls and Gilberts...Palau... the famous "Marianas Turkey Shoot"...Rabaul...Truk...and on to the unbelievable attacks by carrier based planes on the home islands of Japan, again and again, through the darkest hours, naval air has kept spotless those glorious traditions born in the days of iron men and wooden ships.

At this moment, when the newest of our time-tested fighters joins wing to wing and mission for mission with this indomitable crew, we take the proud privilege of saying, "Well done, Navy...Well done!"

To our contemporaries in the aircraft industry who build the *Wildcats, Hellcats, Corsairs,* the *S.B.D.'s, Helldivers, Avengers, Catalinas* and the *T.B.F.'s* which have borne aloft this insignia . . . . *Salute!*

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THE only four-engined transport planes in domestic air service in America at the time of Pearl Harbor, the Stratoliners of TWA have completed two and a half years of Air Transport Command operation. And, through all kinds of landings on all kinds of terrain, they added new, impressive evidence of the dependability of Goodyear wheels and Goodyear multiple disc brakes.

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Now resuming regular scheduled air service, the Stratoliners have been extensively modernized with the newest and finest engines, wings, tail surfaces and landing gear.

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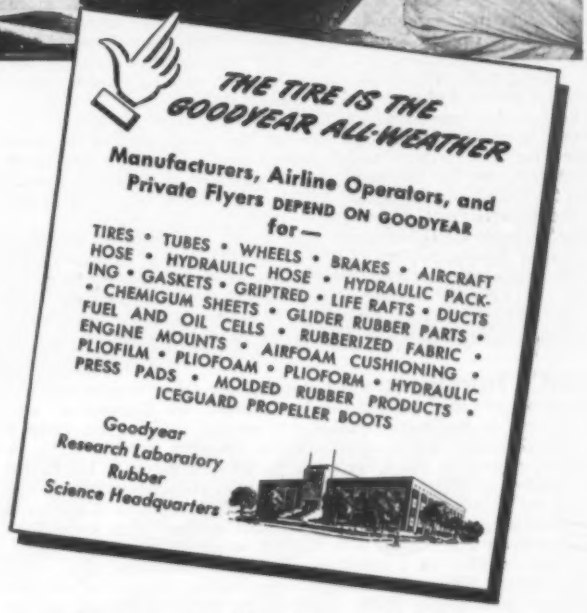
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Trends

(Continued from page 1)

retary of commerce, are members. CAB Chairman L. Welch Pogue, although not a formally designated member, will attend meetings with the privilege of participating in discussions.

Howard Westwood, former general counsel for the Air Transport Association and more recently in the Marines, has accepted appointment as secretary of the Committee.

Stand-By Aircraft Plants: The fact that the Army Air Forces definitely has earmarked the Ford Willow Run bomber plant as one of the factories it hopes to keep as a stand-by after the war spotlights a question which is rapidly assuming major importance. Industry and Government alike are not very sure just what should be done in the way of stand-by plants, or which ones should be retained for that purpose. At one time the AAF was reported to have tentatively decided upon eight major factories, most of them in inland areas, for retention as stand-bys and thinking on the subject has not changed greatly during the past year.

Of Willow Run, the AAF said: "The demobilization plans of the Army Air Forces, subject to frequent revision until more exhaustive studies have been made, call for the retention of Willow Run as part of the postwar aircraft stand-by system . . . This does not imply . . . that any request by industry for non-war use should not be given the most serious consideration, since an active industrial plant constitutes a type of stand-by, in its broadest sense, which is highly desirable. It is not believed, however, that acquisition of the plant should be permitted for any purpose which would result in major structural alterations, or its destruction, without Government consent." That is the closest to actual policy yet offered by the military or the Government.

Sen. Joseph C. O'Mahoney (D., Wyo.) chairman of the War Contracts Subcommittee of the Senate Military Affairs Committee, has made it clear that he is anxious to have suggestions from the aircraft industry as to disposal of surplus government-owned facilities. He will hold hearings later, but meantime wants the industry to get on record with its best ideas.

ACCA's Transition: Final steps in the long reorganizational procedure of the Aeronautical Chamber of Commerce will be put up to the membership at a special meeting on June 8 in Washington. Two organizational changes remain: (1) A vote on changing the Chamber's name to "Aircraft Industries Association of America, Inc." based upon the conclusion of the Board of Governors that the words Chamber of Commerce are confusing to the public and under present day conditions constitute an inaccurate title for the work of the organization. (2) The creation of a division of affiliate members.

The second proposal would set up a wide category of affiliate members who would share in ACCA benefits but would not be entitled to vote. These would include designers and manufacturers of experimental aircraft, engines or parts; distributors; operators of non-scheduled aeronautical services; airport operators; producers and distributors of fuels; interested firms and individuals in the insurance fields; various organizations, including sub-divisions of Government, etc. Many of these specialized groups already have their own organizations, and creation of the affiliate membership is expected to permit greater efficiency in ACCA work.

Bringing Aviation Downtown: Many aviation observers feel that CAA Administrator T. P. Wright underlined one of the most important postwar aviation problems when he endorsed National Aviation Trades Association's plan for an experimental downtown airpark for Chicago.

Said Wright: "Your desire to prove the value of a landing place near the business-industrial-banking-hotel center of a great city is exactly the sort of enterprise the aviation industry should be showing. You are attacking the heart of the air transport problem, which has been seriously affected all these years by the necessity of locating airports far away from business centers. Unless the airplane can pick up its passengers and cargo from points close to their origin, and deliver them close to the final destination, air transport cannot perform its greatest service to the public."

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American Aviation Directory: Published twice a year, spring and fall. Complete reference data on administrative and operating personnel of airlines, manufacturers, accessories firms and their products, organizations, schools and local operators, Federal and state government agencies concerned with aviation. Single copy, $5: Annual subscription $7.50. Discounts on quantity orders. New Spring-Summer Editions available this month. Helen L. Walsh, *Managing Editor.*

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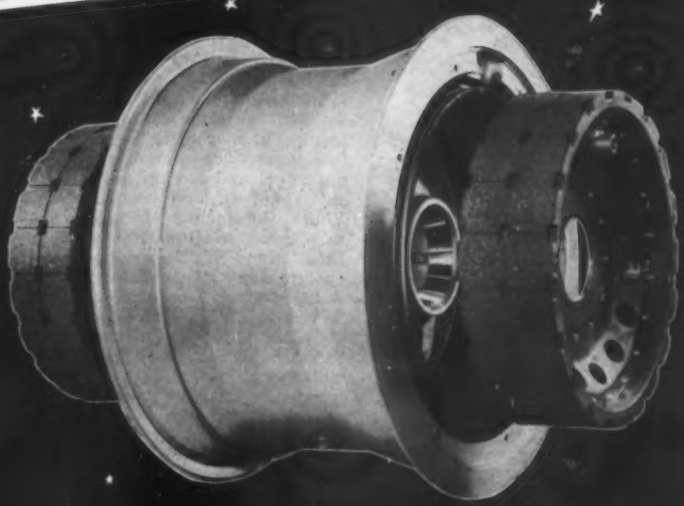

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(Continued from page 4)

Talking to Congress: Observers familiar with "The Hill" in Washington unanimously concur in the report that members of congress are more than anxious to widen their knowledge of the aviation industry, air transport, and their tremendous economic and political implications in both the domestic scene and worldwide affairs.

Some felt, however, that one of the basic problems—the proposed nationwide airport program—was inadequately "sold" to Congress by some of the lesser Government officials during recent appearances at Lea Committee hearings on the airport bill.

For instance, when one congressman—with an eye on economy in Government expenditures—asked if the airport program "came from the people" or was dreamed up in Washington, not a single witness thought to mention the fact that the CAA airport program was drawn up at the specific request of Congress itself.

Capsule Observations: Boeing's sales manager, F. B. Collins, believes first deliveries of the Stratocruiser can be made to airlines in the third quarter of 1946 . . . Minnesota has enacted a 1% ad valorem tax on aircraft, based on the manufacturer's sales price less allowances for depreciation after the first year. Exempted are aircraft owned by federal, state, municipal and foreign governments, and private craft using airspace and airports less than 90 days continuously . . . New York's Continental Bank & Trust Co. sees a trend in the fact that three small waterfront homesites on the north shore of Long Island, N. Y., were sold recently to buyers who own and operate amphibious planes . . . "Fashions slanted toward postwar air travel" were featured recently by New York's Laboratory Institute of Merchandising in a big show at the McAlpin Hotel . . . More evidence that merchandising will be keyed to the Air Age . . . In volume and frequency of shipping, machinery is the number one commodity of wartime air express . . . While most of this was for emergency purposes, airlines with cargo carrying ambitions might reflect that emergencies are going to continue to occur with machinery and fast shipment will often be desired, even in peacetime.

CLIFFORD GUEST
MANAGING EDITOR,
American Aviation Daily.

Editorial

(Continued from page 1)

makers can't move ahead on commercial work because of such restrictions as continued drafting of young men needed in engineering work.

One company says if it could put just sixty men at work engineering a commercial project, it could employ 7,500 workers eighteen months from now. If the engineering is held up further, the employment of workers is postponed just that much more. And this company knows that a year from now the pressure will be applied to keep up the employment rolls. The work won't be there.

We are quite sure that the majority of Washington officials concerned with production problems haven't very clear ideas on the acute employment problems that will be upon the nation before too long. The aircraft industry will be expected to do its share, but aircraft manufacturing is not a consumers' or mass production industry. Reconversion must start with small engineering projects eighteen months, at least, ahead of production.

We have never envied the job of Major General Lewis B. Hershey, director of Selective Service, but we wish he'd become realistic on aircraft production and realize that the wastage in skills of young engineers today is going to mean acute problems for the nation

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ANOTHER MARTIN FIRST
Two-Fisted Terror! Guns controlled by Martin plastic hand grips have shot down more enemy aircraft than any other turret guns in this war. These grips give quick, easy, comfortable turret control, thus helping increase accuracy of fire.

Axis Airmen Can't Wriggle out of these Deadly Grips!

Handfuls of Power! With one of these Martin *plastic* grips in each hand, Allied aerial gunners can swing turrets in vertical and horisontal planes, control gunfire, even regulate intercommunication system.

Martin plastic hand grips give gunners greater accuracy

Stepping up accuracy of fire, reducing fatigue strain on aircraft gunners, Martin plastic hand grips are an important factor in maintaining and increasing Allied aerial superiority. Used on Marauders, Marylands, Baltimores, Coronados, Liberators, Havocs, Venturas, Invaders, Black Widows, the training turrets of Beach aircraft and on such British planes as Lancasters, Bostons and Sunderlands, these grips have helped account for more enemy aircraft than any other type of control.

Unlike metal grips, which freeze to the gunner's hand at high altitudes, the Martin plastic hand grips give maximum efficiency at all altitudes. Gunners have only to swing the grips right or left, up or down and the turret responds instantly, keeping the target in the sights. Extended and indented to fit the hand, they insure greater comfort and ease of operation—while providing firm braces for the gunner to grip when the plane bucks or pitches. When used in the famous Martin aerial turret, they give our gunners one of the war's most deadly weapons.

These plastic hand grips are typical of the many developments which have been perfected by Martin to improve both performance and production of Allied warplanes. Today pledged to war, Martin skill and ingenuity will, in the days to come, make major contribution toward building a more abundant world.

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These valves have high efficiency and are uniform; the control obtained is smooth and constant. The valve input pressure may be as high as 1500 psi and control is obtained with pressure as low as 25 psi at the brake. Accurate control of braking is independent of pressure in main hydraulic system providing only that system pressure is equal to or greater than the pressure needed to provide maximum braking force.

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tomorrow. England, Germany and Russia had the courage to utilize their skilled men where they were best suited. General Hershey has followed the line of least resistance on a "treat alike" basis which avoids criticisms but which will multiply the problems of our postwar economy.

General Hershey is undertaking the task of re-employing returning veterans. If he wants to do a job in the national interest, he will see to it that there is work to be done—not three years from now but a year and a half from now when that work will be needed.

Henry P. Nelson, chief of the WPB aircraft division, has done a good job. His side of the reconversion planning is running with relatively good smoothness. But merely lifting the controls from WPB isn't enough to give the aircraft builders a green light. The big bellyache right now, and its a full bellyache when one sees the tremendous wastage of manpower in both non-combat military and civilian government agencies, is the draft policy. If immediate postwar jobs are wanted, the government had best take a few courageous steps and permit industry to plan today for the jobs which can come tomorrow when needed.

End the Flying Restrictions

FROM the present outlook the government is well prepared to jump in with emergency war-time regulations but forgets about removing those restrictions when the emergency is over. Example Number One of Silly Surplus War Regulations is the retention of the flying restrictions on the east coast of the United States, or maybe we didn't hear correctly that the European war is over. The entire east coast should be opened up to private flying without equivocation, delay or red tape.

Lest We Forget

REMEMBER back to 1939 when the aircraft manufacturing industry of the great United States was 44th in size among other industries?

Remember how the public wouldn't support an air power program, and Congress wouldn't appropriate more than a nominal sum to keep the Army Air Corps and the aircraft enterprise going?

It can happen again, and will happen, unless the importance of aeronautical research and experimentation and development is emphasized over and over again.

It may happen again that even the national periodicals won't look at articles dealing with military matters. Just a few weeks ago a friend of ours was going through his old personal files and found a letter dated September, 1936, from the editor of a national magazine replying to our friend's suggestion for an article on our lagging air power. Here is the editor's reply:

"I daresay the subject is important, but we usually draw the line against that type of article which bemoans our military weakness, or our naval deficiencies, and now the inadequacy of the air force."

That was 1936. That was when the Germans were preparing. How many billions of dollars we would have saved had we spent millions then. Will we permit jet propulsion and rockets to go undeveloped in the U. S. in the next ten years? Will we forget the lessons we have just learned?

Anybody See a Taxpayer?

EXAMPLE Number Two of Silly Surplus War Regulations is the guard set-up in the Commerce Building in Washington which necessitates the employment of a group of women and uniformed guards to make sure that visitors to the building are properly credentialed. Frankly we've been credentialed to death and if the government thinks the wasteful guard system prevents unwanted visitors it is slightly off-base.

The federal payroll is so bogged down with surplus employes that years will be required to weed out the costly extra baggage if it can ever be done at all. But a few trimmings could be effected right now. If there is still anything secret in the Commerce Building, a few guards could handle it on the spot and not clutter up the first floor lobby with obstacles and barriers to the free access to civilian offices maintained by taxpayers. The war isn't over, but the need for such obstructions as the registration desks in the Commerce Building is over. This is just one of countless wastes of the taxpayer's money.

Recognition for Air

THE APPOINTMENT of Rear Admiral Harold B. "Min" Miller as director of public relations for the Navy Department is not only recognition for a naval aviator who knows public relations but is the best break that naval aviation has ever had in Navy public relations. An Annapolis man, Admiral Miller distinguished himself in the early days of the war for his educational training aids. Then he went to London as naval air attache. Last fall he appeared suddenly at Pearl Harbor to take over public relations for CinCPac. Popular with the press and plenty able, "Min" Miller's arrival in Washington is a good omen for naval aviation.

That Makes It Interesting

IF THE GENIAL, hard-working and straight-shooting vice president and general manager of Delta Air Corp., C. E. Woolman, is never known for anything else he will have earned his claim to fame with the following classic gem: "The only monotonous thing about the aviation industry is the constant change."

WAYNE W. PARRISH.

Books

***AIR LAWS.** By C. N. Shawcross and K. M. Beaumont, London. Sole agents in the U. S.: The Carswell Co. Ltd., 145-149 Adelaide St. West, Toronto 1, Canada. 816pp.*

Rather than attempt to provide an analytical review of this valuable work on air law, a description of its contents will give readers a better idea of how it fits their needs. Certainly any lawyer dealing with economic regulation, and especially with air transport in the international field, will want to obtain a copy. It would appear to be the only complete such work published to date. Actually, it was started in 1936 by two English barristers and has been a long time in the making.

The authors have collected in this volume all the essential legislation, international treaties, conventions and notes bearing on the subject of air law. These documents have been thoroughly and systematically examined and explained.

The work is designed to be kept up to date by supplements, to be filed in a pocket provided in the back cover. When the international convention arising from the Chicago conference is ratified by the required number of states, it will be issued as a supplement.

There are 10 parts in the book as follows: History, nature and sources of air law; laws restricting and regulating the right to fly; carriage by air; third parties—public and private laws governing rights and liabilities; aircraft insurance, ownership, sale, possession and manufacture; aerodromes; airlines and services; laws governing their establishment and operation; the law of servant and master as it affects the use and operation of aircraft; jurisdiction.

There are eight appendices as follows: international treaties, a list of treaty arrangements between the U. S. A. and members of the British Commonwealth of Nations; British statutes; British statutory orders, directions and regulations; notes on British emergency acts applied to aircraft; the international air traffic association's general conditions of carriage; tables of parties to conventions and treaties; and notes on British war emergency legislation. The book is thoroughly indexed.

(Copies may be ordered from American Aviation Book Department, American Bldg., Washington 4, D. C., for $15.00 each which includes duty and postage. Cash or check, or company purchase order, must accompany the order.)

***HIGH JOURNEY.** By Carleton Putnam. Charles Scribner's Sons, New York. 302 pp. $2.75.*

The founder and president of Chicago and Southern Air Lines has written a thoroughly engrossing book on "a decade in the pilgrimage of an air line pioneer." It is the first time in air transport history that one of the builders of the industry has put into words for publication the trials and tribulations, the heartaches and the triumphs, that have gone into the development of an airline in this country.

Mr. Putnam's book will be given extensive treatment in the next issue of this magazine, for his personal comments on men and events in air transport and the government have more than literary interest. The names of men familiar to all in the industry appear throughout the book and especially touching is Mr. Putnam's tribute to C. E. Woolman, v.p. and general manager of Delta Airlines. The men who joined Putnam to build C & S into a system—Amos Culbert, D. D. Walker, Bruce Braun and others—are given considerable attention. But beyond this is a philosophy of freedom and initiative and private enterprise which Mr. Putnam expresses very well. It is a good book, a "must" for the library of everyone in aviation. Especially can it be recommended as essential reading for newcomers in the business who have never experienced the rough and tough days in the early development of the industry.—W. W. P.

R. T. P. TRANSLATIONS *of the British Ministry of Aircraft Production. Distributed by Durand Reprinting Committee, California Institute of Technology, Pasadena 4, Calif.*

These R. T. P.'s are composed of translations of technical articles appearing in both enemy and allied publications which were prepared for the British Ministry of Aircraft Production. This material has received small distribution heretofore in the United States due to England's paper shortage, and it is for this reason that the Durand Committee is now reprinting these papers and distributing them on a yearly subscription basis. As the cost of subscription is a function of the number of subscribers, quotations will be furnished by the committee on request. The Durand Reprinting Committee is a non-profit organization which was originally set up to reprint Durand's "Aerodynamic Theory".

Letters

To the Editor:

On page 40 of the May 1st issue of *American Aviation*, you captioned a photograph of F. D. Roosevelt "Became 1st Flying President". This is not quite true. President Theodore Roosevelt flew in a Wright plane with Arch Hoxie, pilot, at St. Louis in November 1910.

L. L. SNOW
MANAGER, AIRPORT DEPARTMENT
PRATT & WHITNEY AIRCRAFT

Editor's Note—Reader L. L. Snow is right, but Franklin D. Roosevelt was the first president to make any extensive use of air transportation in both his domestic and international travels.

Obituaries

Marshall Headle

Marshall Headle, 52, successor to the late Wiley Post as top test pilot of Lockheed Aircraft Corp., died last month in Burbank, Calif., of a heart attack. An structor of U. S. Army flyers in World War I, Headle tested some 300 different types of planes during his career. He flew the Lockheed P-38 on its maiden flight.

John C. Johnson

A truck-motorcycle collision was fatal last month to John Charles Johnson, 34, superintendent of maintenance, Braniff Airways. He joined Braniff as a crew chief when that company acquired the aviation interests of Long and Harmon in 1935.

Charles E. Cox

Charles E. Cox, 33, a Curtiss test pilot, was killed last month in the crash of an experimental Curtiss plane near Buffalo airport. He was on a routine test flight.

Wings of Yesterday

Twenty-five Years Ago

Lt. Harry Weddington, with three passengers, reached a record altitude at Kelly Field, Texas, of 20,081 ft. (May 26, 1920)

The first outdoor Aero Show to be held on the Pacific Coast, opened at San Jose, Calif. (May 29, 1920)

A Dayton Wright model O. W. "aerial coupe" flew from Dayton, O. to Cleveland, Pittsburgh and Washington, carrying ice cream for the banquet of the Retail Ice Cream Dealers' Association being held in Washington. (May 30, 1920)

Lt. Fronval, test pilot for Morane-Saulnier Co., reported to have made a record of 962 loops in 3 hours and 52 minutes, at Villacoublay. (June 1, 1920)

A Farman "Goliath" is reported to have set a record by remaining in the air 24 hours, 19 minutes and 7 seconds. (June 3, 1920)

Sweden's first Flying Show opened at Stockholm. (June 6, 1920)

Lt. John H. Wilson of the 96th Aero Squadron, Kelly Field, Texas, piloted by Lt. Delmar Dunton, jumped from a De Haviland-B plane from an altitude of 19,861 ft., landing safely. (June 7, 1920)

Fifteen Years Ago

Col. Roscoe Turner flew from New York to Los Angeles in a total elapsed time of 18 hours, 43 minutes, 34 seconds, setting a new record for the east-west flight. (Lockheed Vega, Pratt & Whitney Wasp motored) (May 27, 1930)

Clarence O. Prest established a speed record for light airplanes of the fourth category for 100 kilometers, of 100.79 m.p.h. at San Bernardino County, Calif., flying a Prest Baby Pursuit, Szekely motored. (May 28, 1930)

In commemoration of the 1910 flight, Glenn H. Curtiss flew from Albany to New York. (May 30, 1930)

Major U. Maddalena and Lt. F. Cecconi established a world distance record, on a closed circuit, of 5,068.27 miles, at Montecello, Rome, Italy, piloting a Savoia-Narchetti S-64, Fiat A 22 T motored. (May 30, 1930)

Capt. Arthur H. Page won the Curtiss Marine Trophy Race at Anacostia, D. C., flying a Curtiss Hawk, Curtiss D-12 motored, at 164.1 m.p.h. (May 31, 1930)

The Collier Trophy for 1929 was awarded to the National Advisory Committee for Aeronautics, for the development of cowling. (June 3, 1930)

A world altitude record of 43,166 ft. was established by Apollo Soucek, at Anacostia, D. C. (Wright Apache, Pratt & Whitney Wasp motored) (June 4, 1930)

The Graf Zeppelin ended an 18,000 mile voyage from Friedrichshafen, Germany. The 19-day trip included stops in Rio de Janeiro and New York. (June 6, 1930)

"In more ways than one our precious supplies were *HEAVEN-SENT!*"

Based on a true story taken from the war record of the Curtiss Commando

"Out of Hope and Penicillin on Tinian. No relief in sight. And more wounded Marines streaming in every hour. Suddenly the roar of an airplane. Friend or enemy? A friend indeed . . . a Curtiss Commando. Loaded with 6 tons of drugs, food and ammunition, it had slipped through the Jap fighter screen over miles of open water. Ten times that day the Commando flew that gruelling trip . . . *and made it!*"

THAT'S WHY I WANT TO RIDE THE AIRLINES THAT *Fly Commando!*

Walk Into Wonderland as you board a Curtiss Commando. Through the wider doorway without stooping . . . down the broad aisle with its deep-pile carpeting and overhead, fluorescent lighting. Relax in the noise-proofed cabin, where you can talk in a normal tone of voice, and where the air is changed completely every 1½ minutes.

High-Speed Loadability. The Commando carries a bigger pay load . . . 3¼ tons of luggage and cargo in its 526-cubic foot cargo holds . . . plus 36 passengers. And the Curtiss-Wright V-tab speeds loading because the airplane is always in balance regardless of the location of the load.

Off with the Old . . . On with the New. Greater accessibility, easier servicing. For instance, the Commando's twin batteries, mounted in a special carriage, are lowered from the bottom fuselage. This, like the service door beside it, can easily be reached by a man standing on the ground.

THE CURTISS *Commando*

Today's Great Lifeliner
Tomorrow's Great Airliner

CURTISS WRIGHT

FIRST IN FLIGHT

What will the Air World be like?

Thanks to the aviation industry, it will be a small world. The airplane, spanning the globe in regular, daily commercial flights—no matter what the weather—can make "good neighbors" of all nations. Encouraging air travel is the job not only of the aircraft industry, but also of the makers of communications and other electronic equipment for use in aviation. And there you'll find Western Electric still leading the way.

During the Seventh War Loan Drive, buy bigger, extra War Bonds!

Western Electric

Distributed by GraybaR

RADIO AND OTHER ELECTRONIC EQUIPMENT FOR A WORLD ON WINGS

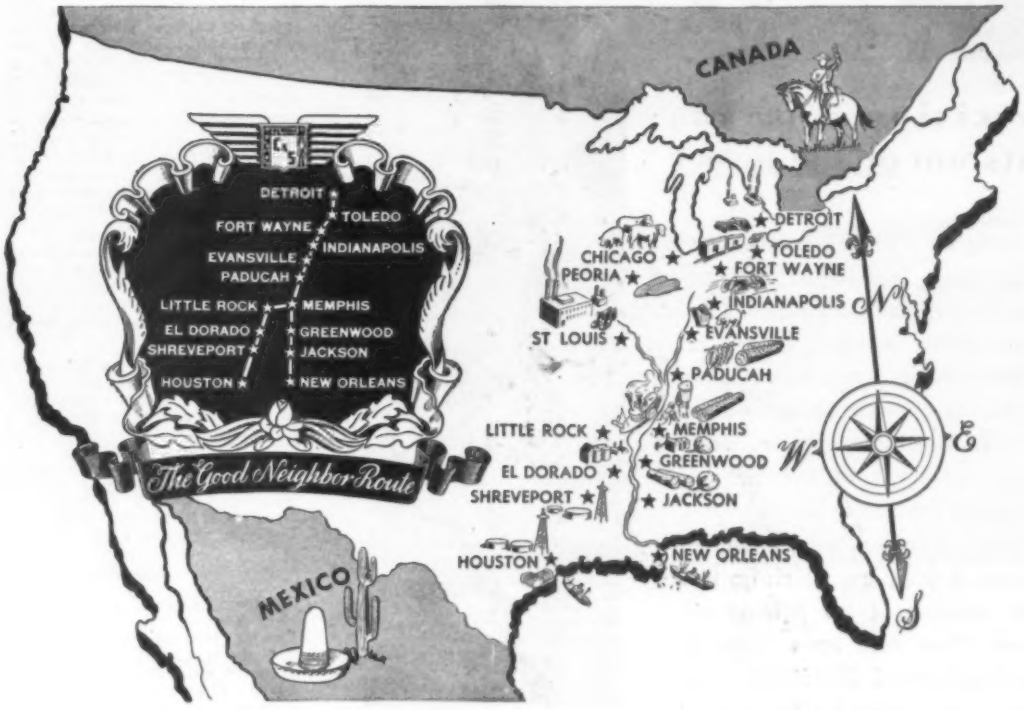
Announcing

THE "GOOD NEIGHBOR" ROUTE

A *NEW* CHICAGO AND SOUTHERN SERVICE

Starting June 1, Linking

DETROIT, MEMPHIS, HOUSTON and NEW ORLEANS



JUNE 1 of this year marks the inauguration by Chicago and Southern Air Lines of a vital new route. This new service will contribute to the war effort from both the military and industrial point of view and also from the larger, less tangible, but highly important standpoint of hemispheric good will and solidarity. Chicago and Southern now serves both Houston and New Orleans, and the shortest distance to both of these ports from the largest Canadian centers, as well as from Detroit and Indiana and Kentucky points, lies directly through Memphis over the already-established lines of the company. Providing a long needed air link between the North and South American continents, this is truly the "Good Neighbor" Route.

CHICAGO AND SOUTHERN Air Lines

DETROIT • TOLEDO • FORT WAYNE • INDIANAPOLIS
EVANSVILLE • PADUCAH • LITTLE ROCK • SHREVEPORT

HOUSTON • CHICAGO • PEORIA • ST. LOUIS
MEMPHIS • GREENWOOD • JACKSON • NEW ORLEANS

Precision *all the way* **puts 'em on the Target**

Perfectly rounded, hollow steel rings, plus lugs forged and precision machined to specifications, plus skillful welding, equals an engine mount ring which is so highly essential in harnessing the thousands of horsepower necessary for flight of the nation's bombers and other aircraft.

Our engineers have designed many of the parts which go into the structure of our fighting aircraft. They also have designed and engineered the intricate tooling so necessary for the type of precision workmanship we are performing for more than fifty major aircraft manufacturers.

Because we have demonstrated our ability to serve others, we would appreciate the opportunity to serve you, too. Just write to us, now.

BUY AN EXTRA WAR BOND

★ AIRCRAFT MECHANICS INC.
COLORADO SPRINGS, COLORADO

DESIGNERS ▲▲▲ ENGINEERS ▲▲▲ MANUFACTURERS

Booklets

(Available through American Aviation Reader Service Dept., American Bldg., Washington 4, D. C.)

Technical

Minnesota Mining & Manufacturing Co., has a new booklet entitled "Arrived O.K." dealing with adhesives in export packaging. In addition to detailed information on adhesives designed to withstand rough treatment, extremes in temperature and high humidity, it shows photographically step-by-step operations involved in sealing fibreboard and V-board shipping containers and waterproof case liners.

B. F. Goodrich Co. has just published a 46-page illustrated booklet on "Care and Maintenance of Airplane Tires and Tubes." It covers the function, construction and types of airplane tires and tubes, inflation, storage and instructions on mounting, dismounting and repairing. A whole section is devoted to an exhaustive discussion of preventive maintenance.

Walker-Jimieson, Inc. has published a new 36-page illustrated catalogue of "Radio and Electronic Equipment" covering apparatus ranging all the way from receiving tubes and X-ray machines to transformers, converters, test equipment and Skilsaw power tools.

Rex Bassett, Inc., has issued a new catalogue of two-way aircraft radios and quartz crystals. It lists individual transmitters and receivers and combined transmitter-receiver units covering the whole field of aviation communications.

Huck Manufacturing Co. has announced a new 16-page manual on "Huck Blind Rivets" covering their operation, advantages, installation and inspection. It is designated Bulletin 451.

Goodyear Aircraft Corp., has put out two new manuals under the title of "Aviation Products" Volumes 1 and 2, intended to aid manufacturers in developing specific applications of Goodyear products to fit their needs.

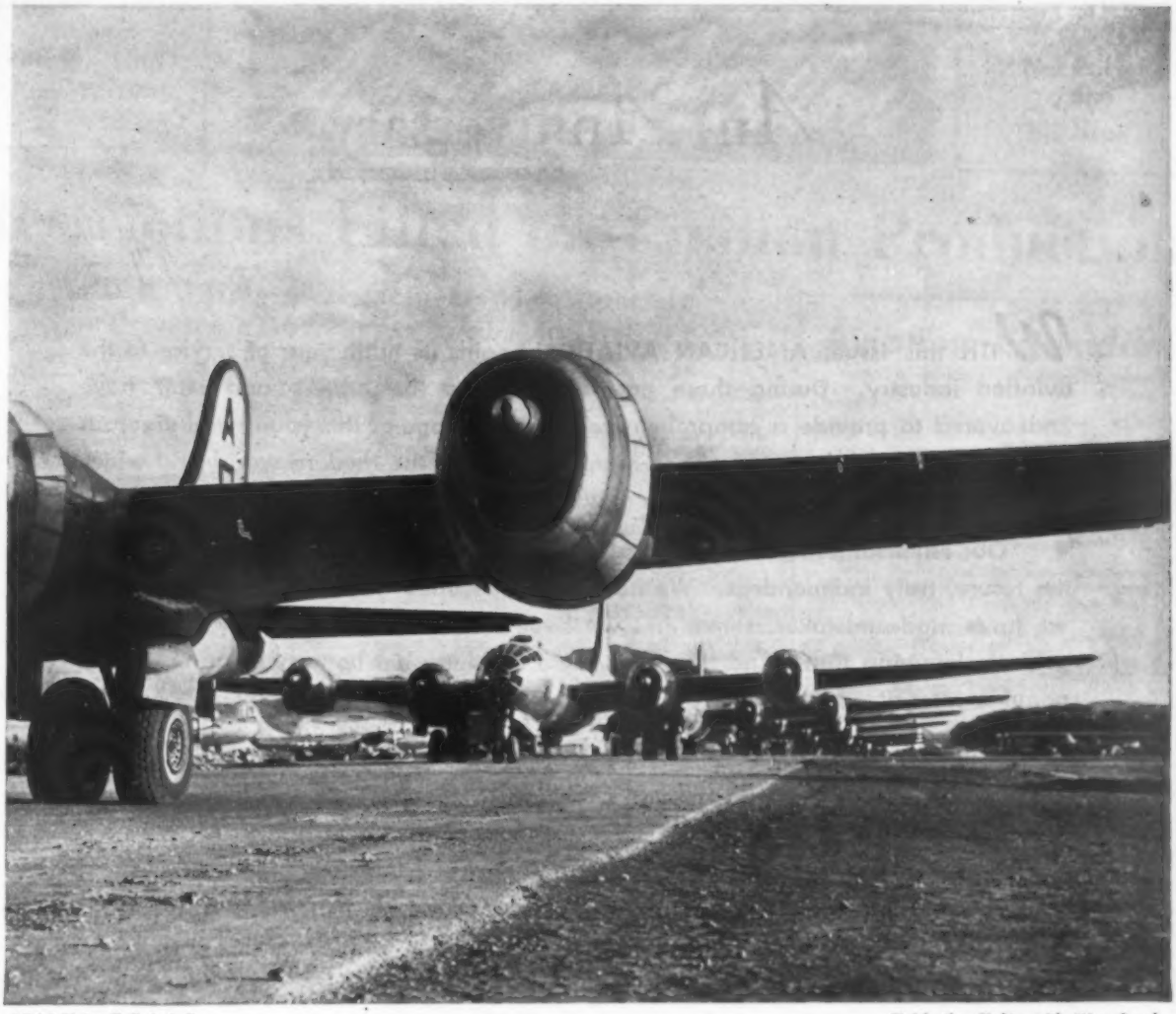
Miscellaneous

Railway Express Agency, 230 Park Ave., New York 17, N. Y., has prepared a new booklet "How Can We Do It Better?" dealing with the part employes play in public relations. Prepared primarily for its own personnel, the booklet is available to others interested upon request.

The National Association of Motor Bus Operators, in a newly published booklet entitled, "Air Policy" asserts that unless intercity bus lines are permitted to operate helicopters, the nation's smaller communities will continue to be deprived of the benefits of air transportation. The Association states it will seek to have the Civil Aeronautics Act of 1938 amended so as to permit integration of motor bus and air transportation.

New Films

The Bureau of Aeronautics has prepared a movie "The Admiral's Reply," particularly for the aircraft industry, concerning the nature and progress of the war in the Pacific. Admiral DeWitt C. Ramsey, Chief of BuAer, does the commentary. The film which is available in 16 mm and 35 mm sound prints lasts 20 minutes and can be obtained from the Production Aid Branch, Navy Department Bureau of Aeronautics, Room 2N79 Washington 25 D. C. Prints of "The Naval Worker's Digest" a monthly film summary of combat action are recommended by the Navy for showing with "The Admiral's Reply."



Official Photo—U. S. A. A. F.

Finish the Fight—with War Bonds

. . . and more to come

With engines warmed up for the take-off, Boeing B-29 Superfortresses fill the long runway on Saipan . . . one behind another, as far as the eye can see. Across the field, as on other fields in the Marianas; still more wait to wheel into line. Tomorrow you will read in your paper: "Industrial targets in Tokyo have been hit again by a force of over 300 B-29 bombers."

It was less than a year ago that the first attack on Japan by the giant Superforts thrilled the nation. Today their valiant crews are regular commuters on the more than 3000-mile round trip. In waves of sky-filling formations, they carry destruction to the enemy's workshops on a relentless schedule.

Back of this achievement is another story—an epic of production. To design, build, test and manufacture in quantity an airplane that so far exceeded all previous bombers in bomb-load, speed and range — and do it *in time* — was an unprecedented task. It called for pioneer work in engineering, tooling and planning. New facilities and processes had to be started from scratch. Methods had to be devised for putting the vast manufacturing program into effect, not only in Boeing's own plants but in those of other aircraft companies, chosen by the Air Technical Service Command of the Army Air Forces to help increase quantity production of the big planes.

Impossible as the job looked, Boeing men were equal to it. Superfortresses are rolling off the production lines in steadily mounting numbers. In the hands of hard-hitting American airmen, they are vital weapons in the war against Japan, and there are more . . . many more to come.

Tomorrow Boeing research, design, engineering and manufacture will be applied to peacetime aircraft for your use . . . your assurance that any such product "Built by Boeing" will be built to lead.

DESIGNERS OF THE B-29 SUPERFORTRESS • THE FLYING FORTRESS • THE NEW STRATOCRUISER
THE KAYDET TRAINER • THE STRATOLINER • PAN AMERICAN CLIPPERS

BOEING

An Anniversary

WITH this issue, AMERICAN AVIATION begins its ninth year of service to the aviation industry. During these past eight years the editors and staff have endeavored to provide a comprehensive news coverage of this young and vigorous new industry which has wrought so many changes in the modern world and which will play such an important part in molding the world of tomorrow.

◀ Our editorial policy was at the start in 1937, is in 1945, and will remain in the future, truly independent. We have spoken without fear or favor. Sometimes we have made mistakes, sometimes we have called the shots wrong, but we take pride in knowing that at no time was there anything but honesty of purpose, and genuine integrity, behind the calling of the shots.

▶ AMERICAN AVIATION is a publication generated from the editorial and news chairs. *It is not a "business office" promotion. It is not a war baby. It is exclusively serving one field.*

◀ Built on a foundation of service, AMERICAN AVIATION has expanded its services with the needs of a growing industry. AMERICAN AVIATION DAILY is the only such publication serving any industry every day with specialized news reports from the nation's capital. AMERICAN AVIATION DIRECTORY fills a need for an accurate and comprehensive periodical reference work of industry companies and personnel. AMERICAN AVIATION REPORTS provides final and accurate air transport statistics. AMERICAN AVIATION TRAFFIC GUIDE is the only complete monthly periodical of airline schedules and fares. INTERNATIONAL AVIATION is just getting its global wings as a reliable, complete international newsletter.

▶ No industry has ever been served with more sincerity of purpose. As we begin the ninth year of AMERICAN AVIATION, we hope we continue to merit the confidence of the aviation industry and the aviation public.

WAYNE W. PARRISH
Editor and Publisher

AMERICAN AVIATION • AMERICAN BUILDING • WASHINGTON 4, D. C

Vol. 9 No. 1
June 1, 1945

American Aviation

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This Issue

Restrictions Lifted on Civilian Production

WPB Will Help Manufacturers Get Materials For Producing 364 Planes Needed by Airlines

By BARBARA MCNAMEE

PRODUCTION of commercial transport planes as a "war supporting activity" was authorized on May 17 by the War Production Board at the same time that all restrictions were removed from the production of non-military planes. WPB informed manufacturers that it would give them positive assistance in obtaining materials for producing the 364 transport planes required by the airlines in the next 18 months.

The biggest problem now facing manufacturers of commercial transports is to negotiate an agreement for the use of government-owned facilities in their production. One transport producer has virtually completed an agreement with Defense Plant Corp. for use of a government-owned plant on a lease basis. Meanwhile the Aeronautical Chamber of Commerce is working with the government to adopt working agreements for use of the plants.

Henry Nelson, director of WPB's Aircraft Division, stated that the aircraft industry will not have a major problem in reconversion, such as that faced by the automobile industry. This is particularly true since the Army and Navy in an extension of their belief that a strong aircraft industry is essential to the defense of the country, have ordered commercial versions of every military transport plane, including the C-97 (commercial version of the B-29), the Constellation, C-54, C-46 and others, he said.

Provisions Listed

On May 17, WPB issued Preference Rating Order P-47a prescribing conditions under which civilian transports may be produced and revoked Limitation Order L-48 which prohibited transfer or manufacture of civilian aircraft . . . Any manufacturer may now produce civilian aircraft and aircraft products as long as this will not interfere with production to fill higher rated orders and as long as materials are not used in a manner prohibited by other WPB orders.

P-47a urges manufacturers to use all idle or excess stocks of materials to produce commercial transports and provides priorities assistance for any additional materials needed. It also provides assistance to obtain materials for modifying surplus military planes. WPB amended P-47, the maintenance, repair and operating (MRO) order for the airlines, to eliminate references to L-48 and in Direction 2 to P-47 provided assistance for obtaining maintenance equipment such as engines and propellers. An AA-2 rating is now available for obtaining airline maintenance supplies.

Manufacturers who need new plant equipment should apply to their local WPB Field Offices on WPB Form 1319 as provided in Direction 2 to Priority Regulation 24. For permission to obtain construction materials they should also apply at field offices on WPB Form 617 marked "For Reconversion Construction". Materials for tools such as jigs, dies and fixtures may be obtained under Direction 35 to CMP Regulation 1 and Direction 25 to CMP Regulation 5.

WPB spokesmen stated that manufacturers of civilian lightplanes may expect limited priority assistance under the spot authorization plan but they warned that there would be no large-scale assistance for a "substantial period." Private plane manufacturers are permitted to use any idle or excess stocks for civilian production and are urged to use ingenuity in substituting available materials for those in short supply. Nelson believes the manufacturers will have little trouble in obtaining all the materials needed for limited production of lightplanes except fabrics and steel tubing.

Aviation Calendar

June 5—Meeting Washington Section, Institute of Aeronautical Sciences.

June 7-9—Annual convention, Aviation Writers Association, Chicago.

June 8—Special meeting membership of Aeronautical Chamber of Commerce, Washington, to vote on change of name and creation of new division of affiliate members.

July 30—Executive Committee, International Air Transport Association, meeting in Paris.

Sept. 2—Interhemisphere conference on frequency allocations and revisions, Rio de Jeneiro. (Postponed from June 2).

Oct. 15—First annual meeting, IATA, Montreal. (Tentative).

Oct. 31-Nov. 3—National Aviation Clinic, Oklahoma City. Pre-clinic conference Oct. 27.

U. S. Members of International Technical Committees Named

APPOINTMENT of U. S. members of the technical committees of the proposed International Civil Aviation Organization, as proposed at the Chicago conference, is announced. Membership, with the committee chairman listed first in each case, follows:

Airways Systems (Annex A), CAA jurisdiction: James F. Angier, CAA; I. L. Ledbetter, CAA; Herbert F. Hillis, CAA; Mrs. Blanche Noyes, CAA; Paul Stafford, CAA; L. C. Vipond, CAA; Fred Grieme, CAA; William S. Moore, CAA; W. C. Peck, AAF; Capt. John V. Tighe, AAF; Commander T. E. Watkins, Navy; Commander L. E. Nivling, Navy.

Communications Procedures and Systems (Annex B), CAA jurisdiction: Eugene Sibley, CAA; L. H. Simson, CAA; L. Ross Hayes, CAA; D. M. Stuart, CAA; Peter Caporale, CAA; Arthur L. Lebel, State (Alt: Major G. M. Kinsey, State); T. E. Daniels, FCC; Capt. J. H. Nicholson, Navy; Col. Wallace G. Smith, War; Major George J. Gosnell, Jr., AAF.

Air Traffic Control Practices (Annex D), CAA jurisdiction: Glen A. Gilbert, CAA; Kenneth Matucha, CAA; A. D. Niemeyer, CAA; J. J. Quinn, CAB; Commander L. E. Nivling, Navy; Major R. S. Froman, War.

Aircraft Registration and Identification Marks (Annex H), CAA jurisdiction: Harry G. Tarrington, CAA; John T. Morgan, CAA; Lt. H. H. Stuart, Navy; Lt. Col. H. E. Hockett, War.

Airworthiness Requirements for Civil Aircraft Engaging in International Air Navigation (Annex G), CAB jurisdiction: Edward P. Warner, CAB; A. S. Vollmecke CAA (Alt: P. C. Spiess, CAA); Charles F. Dycer, CAA Alt: Omer Welling, CAA); Major J. K. Bussey, War; Commander W. H. Branch, Navy.

Rules of the Air, Air Traffic Control Officer Certificate, Search & Rescue, & Investigation of Accidents (Annexes C & L), CAB jurisdiction: John J. Quinn, CAB; Glen A. Gilbert, CAA (Alt: K. Matucha, CAA); Paul E. Young, CAA (Alt: W. S. Moore); Capt. Henry W. Percy, War; Major Robert L. Froman, War; Col. George C. Price, War (Alt: Lt. Col. R. E. Churchill, War); Major Elmer H. Staffelback, War; Major Abbot Kagan, War; Commander T. A. Christopher, Navy; Commander L. E. Nivling, Navy; Commander W. A. Burton, U. S. Coast Guard; W. B. Davis, CAA; John M. Chamberlain, CAB; Merrill Armour, CAB; Jesse K. Fenno, CAB; Arthur Lebel, State.

Standards for Operating & Mechanical Personnel (Scheduled Air Carrier Operations) (Annex E), CAB jurisdiction: R. D. Hoyt, CAB; James L. Kinney, CAA (Alt: W. W. McConnell, CAA); Lt. Col. James C. Skinner, War; Lt. Col. A. P. Fonda, War; Major H. C. McAuliff, War; Commander W. H. Branch, Navy.

Standards for Operating & Mechanical Personnel (Nonscheduled Operations); Logbooks (Annexes E & F), CAB juris-

diction: R. D. Hoyt, CAB; William S. Moore, CAA (Alt: P. E. Young, CAA); Lt. Col. James C. Skinner, War; Lt. Col. A. P. Fonda, War, Major H. C. McAuliff, War; Capt. Carl G. Nelson, War; Commander W. H. Branch, Navy.

PICAO Meteorological (Annex D), Weather Bureau jurisdiction: D. M. Little, Weather Bureau; I. R. Tannehill, Weather Bureau; R. W. Craig, Weather Bureau; G. M. French, CAB; L. R. Hayes, CAA; Col. D. N. Yates, War; Capt. H. T. Orville, Navy; Commander A. A. Cumberledge, Navy.

Aeronautical Maps and Charts (Annex J), Coast & Geodetic Survey jurisdiction: Lt. Com. Paul A. Smith, C&GS; Kenneth Keefe, CAA; David Postle, CAB; Col. Gerald Fitzgerald, War; Commander J. A. Gamon, Jr., Navy.

Customs Procedures and Manifests (Annex K), Treasury jurisdiction; Burke H. Flinn, Treasury; Dr. S. O. Fladness, Agriculture; E. R. Sasscer, Agriculture (Alt: H. S. Dean, Agriculture); Miss M. E. Crosby, Post Office; Dr. L. D. Elliott, Federal Security; Albert E. Reitzel, Justice; Dr. R. E Bodet, Federal Security; Commander W. H. Branch, Navy.

5 Airline Experts To Visit Germany

Five leading technical authorities of the domestic airlines have been selected by the War Department to visit Germany during the next month to investigate all phases of the Reich's air transport industry.

The airline personnel were selected by the newly formed Aeronautics subcommittee of the Technical Industrial Intelligence Committee named by the Joint Chiefs of Staff, Army and Navy. Named to this commission were:

Charles Froesch, chief engineer of Eastern; E. J. Minser, superintendent of meteorology for TWA; C. A. Petry, communications department, United Air Lines; O. E. Kirchner, director of aircraft engineering, American Airlines, and J. H. Carmichael, vice president-operations, PCA.

A long list of subjects dealing with all phases of airline operations and equipment has been prepared so that these technicians will be able to obtain as much information as possible on the German air transportation system. Similar technical groups are being recruited from other U. S. industries so that both the Government and industry may have the benefit of whatever technical superiority the Germans possessed in their industrial economy. The information obtained is to be made available to all of the airlines of this country.

De Jong Named to IATA Traffic Advisory Group

A twelfth member of the traffic advisory committee of the International Air Transport Association was named at the group's recent conference in New York. He is Marten E. A. L. De Jong, representing K.N.I.L.M., Royal Netherlands East Indies Airlines.

Charles Rheinstrom, vice president of American Airlines, was chosen chairman of the conference. John Brancker, long-time traffic official of British Overseas Airways, substituted for R. D. Stewart of that company, originally named to the committee.

Pogue Voices Opposition to 'Air Blocks'

By PEGGY HEREFORD

CHAIRMAN L. Welch Pogue of the Civil Aeronautics Board told a Los Angeles press conference last fortnight that he is opposed to any "air blocks" or special interest areas for any particular nation in the field of international aviation.

"Such entanglements of free air and this concept of air service isn't in our interest or the interest of any other nation," Pogue told the press, prior to his address at the annual Aviation Day of the Los Angeles Advertising Club.

"Nor do we want a subsidy," he said. "All we ask is the opportunity to do an economic job, flying routes on a commercial basis with the right to intermediate traffic. The CAB in drafting international routes did so on the basis of sound economics and not on the basis of international prestige.

"Sea traffic never had restrictions placed on trade and traffic. Why distinguish between air and sea traffic in international routes?"

In referring to the Chicago conference, he characterized the sessions as successful although all problems weren't settled, adding that . . . "it did organize the world on a safety and technical basis."

Domestically, Pogue stressed, "I'm a great hoper that after the war is over, all mail will go by air where air service is the fastest means of moving the mail. I'm also looking forward to the day when parcel post will move by air. Today the postoffice department is making money, a clear profit of more than $70,000,000 on air mail."

In reply to question regarding possibility of jet transports during early shakedown period being used as mail planes, Pogue said it was feasible, stressing that the government was eager to back and help all advancements.

Pointing out that the Civil Aeronautics Act has lots of policy written into it which many people tend to overlook, Pogue reported that two of four decisions in the foreign field, North Atlantic and Latin American cases, were ready for action. In domestic development, decisions in feeder and local service hearings will start coming about July 1. West Coast decisions will probably be reached by Fall, he said.

Under the category of an unknown yet to be fully developed comes non-scheduled operations, according to Pogue. He termed the recent non-scheduled hearings as "purely fact-finding" and ventured opinion that the question of non-scheduled versus scheduled operations in cargo business will develop with termination of the war and the presence of large quantities of surplus planes.

In his formal talk, "Aviation Takes Off," Pogue reviewed the past, present and coming years for the industry, noting that "aviation from its birth in 1903 has had the maximum opportunity to develop freely and without restraint through the freedom of the individual, the comparative readiness of the masses to accept something new, and the alertness and growing interest in scientific developments generally."

CAB Chairman Pogue (right) and Glen Eastburn, of the Los Angeles Chamber of Commerce, are shown with a wind tunnel model of the Douglas C-74. Photo was taken at the new Southern California Wind Tunnel at Pasadena.

In addition, Pogue stressed that aviation was greatly stimulated through no state barriers, that as an industry it had roughly 3,000,000 square miles in which to develop. "It is earnestly to be hoped that this ideal arrangement shall not be ingloriously destroyed by the erection of veiled and artificial state barriers. I feel thoroughly hopeful that most states will agree that aviation is essentially interstate in character and that they will not, by the erection of artificial state barriers, ruin one of our country's greatest opportunities for the continued technological development of our vast resources."

Just as the war period placed military aeronautics in the Big League, Pogue declared the future must insure research, development work and flexibility of outlook to maintain this wartime excellence. "We are rich in aeronautical products and equipment; the danger is that we will rest on our laurels and not continue that ceaseless fight for improvement."

Commenting on the general acceptance of air transportation by the people in a very short space of time, Pogue figuratively described that having swallowed aviation in capsule form during five years of war, common man now knows there is no real reason not to avail himself of this great facility for trade and travel.

Bird Menace Reported Serious In India-Burma Theatre

By ERIC BRAMLEY

CALCUTTA—There are Army officers in the India-Burma Theatre who are trying to convince other officers that the birds talk.

These "birdmen" are equally convinced that they can persuade the birds to dodge airplanes, instead of having the airplanes dodge the birds.

This may sound strange, going on in the middle of a war, but the bird menace in the theater is a serious one.

A four-engined C-87 cargo plane left its India base and was headed for China with a load of war supplies. Suddenly a large vulture appeared in the line of flight, smashed through the windshield and hit the switch that feathers the propellers. The pilot suddenly found himself with all four propellers feathered, and only by frantic manipulating was he able to get two of the engines functioning and make a safe landing.

An Air Transport Command C-54, also headed for China, hit a vulture, damaging the plane's wing, puncturing a gas tank, requiring major repair.

The records of the Army Air Forces, ATC and RAF in India-Burma are filled with instances of birds causing serious damage to aircraft. Every airfield has its flocks of birds, who seem to take special delight in hovering off the ends of runways. During some periods, more aircraft have been rendered inoperative by birds than by Jap action. All pilots are warned to avoid them.

Much Unofficial Research

This "bird trouble" has led to a lot of unofficial research into the problem of how to keep the feathered tribe away from the airfields. (One pilot, reporting a collision with a bird, wrote on his form: "It is recommended that the local Chamber of Commerce instruct their birds to practice aerial maneuvers elsewhere than in the immediate vicinity of airfields.")

The theories expounded by some of the amateur ornithologists have caused much laughter among more conservative officers, but these students of bird lore stick to their guns, although admitting that their ideas may sound fantastic.

The birds, these part-time ornithologists claim, speak a language all their own. To support their statement, they cite the instance of a flock of buzzards that holds regular "meetings" in a large tree near one of the Calcutta airfields. After sitting quietly for a while, the flock will engage in prolonged chattering. Suddenly they will turn on one member of the tribe and tear him to pieces.

This proceeding, the bird lovers reason, was a court martial. The accused party had been found guilty of some offense and was "liquidated."

Officer Does Some Spying

On another occasion an officer hid near a place where a flock of vultures was feasting on the carcass of a dog. He tossed a rock into the middle of the feast, stunning one of the birds. The others, after a hasty look around, flew away. Shortly thereafter, the stunned bird picked himself up, made a groggy take-off and joined his brothers.

The officer remained in his hiding place for the remainder of the day, but not one bird returned, despite the fact that there was plenty of dog left to go around.

The bird students claim that word was passed around through the bird world that a dangerous situation existed, and the area in the vicinity of the dog's carcass was placed "off limits".

The birds in the India-Burma Theater have a very complacent attitude toward the airplane. They know (say the students) that the airplane never attacks them, and any collisions are merely viewed as unfortunate accidents.

Therefore, say the bird-talk proponents, why not devise a system of getting

Front of a C-109 after a 'bird accident.'

a message on the bird grapevine that airplanes are dangerous and that all airfields should be shunned?

One letter has even been written through official channels, suggesting how this might best be accomplished.

"The essence of the present suggestion is to remove this complacency from the vulture's outlook," wrote the Allied officer. "It is suggested that, as a rest duty, a few pilots should be formed into an anti-vulture patrol in certain experimental areas and the results watched. These pilots will seek out the vultures and will turn and *attack* them whenever met (a flying attack, not a shooting attack).

"It is not expected, nor is it considered necessary, that very many vultures would be destroyed in these attacks, but it is felt that there would be a very quick and widespread reaction amongst vultures to the fact that the aircraft is a thing to be feared and they would, in consequence, keep clear with a resultant decrease in the 'collisions with birds' accidents rate.

Could Stiffen Leading Edge

"It is anticipated that whatever aircraft may be considered suitable for the job could be suitably stiffened in the leading edge to cope with the hazard of bird attacking."

It remains to be seen whether the ornithologists will be able to convince the dubious higher authorities that their theories are plausible. But the research has been the subject of debate in many bull sessions. The cause has not yet been abandoned.

And to top off the bird story, one of the officers who professes to be interested in the subject is Col. Robert White, director of aircraft maintenance for the India-China Division of ATC.

Col. White's nickname is "Bob White."

Hole made in wing of a C-54 when a large bird crashed through it. Note feather at lower left of opening.

Director of Danish Lines Has Been in U. S. a Month

Capt. Knud Lybye, managing director of D.D.L., Danish Air Lines, is returning to Copenhagen shortly after a visit of a month in the U. S. in connection with airplane purchases. Capt. Lybye escaped from Denmark in a row boat a month prior to the liberation of his country and hence his presence in the U. S. has been kept secret for fear of reprisals.

The Danish airline will be part of the Scandinavian air pool to operate an air service to the U. S. when conditions permit, and will also operate into various capitals of Europe.

B-29 With Liquid-Cooled Engines Flight Tested

An experimental B-29, designated as the XB-39, has been equipped with Allison V-3420 engines and successfully flight tested, according to the Air Technical Service Command. This is the second large multi-engine plane to be tested with 2600 hp in-line, liquid-cooled engines in recent months. The first was the Douglas XB-19A, experimental bomber which has been converted to a transport.

The new engines give the XB-39 a total of 10,400 hp, 1600 more than the 8800 of the standard B-29 which is powered with four Wright 3350 air-cooled radials.

Installation of the Allisons was carried out at the Cleveland plant of the Fisher Body division, General Motors Corp., which also handled the B-19 installation.

Fred M. Glass Promoted

Fred M. Glass, member of the law firm of Pruitt, Hale and Coursen, counsel for American Airlines, has been promoted to colonel in the AAF. He is deputy chief of staff of the Pacific Division, Air Transport Command.

Prospect of Unemployment Alarms Labor; Asks That Study Be Made

UAW, IAM Deplore Lack of Coordination

CREATION of an Interdepartmental Committee to determine the future utilization of surplus aircraft facilities and unemployed aircraft workers was urged by representatives of the United Aircraft Workers and International Association of Machinists at a recent meeting with War Production Board officials. WPB Chairman J. A. Krug agreed to discuss the proposal with War Mobilization and Reconversion Director Fred M. Vinson, officials of the Department of Commerce, and other interested agencies.

The labor representatives meeting informally with Krug and the members of WPB's Aircraft Division deplored the "lack of coordination" among the government agencies on planning for the full utilization of government-owned plants. The proposed committee could serve as a clearing house for information on the plants and as a group to prepare for Congress a plan for their use after the war.

The union leaders included: Gerry Cotton, IAM-AFL; Richard Frankensteen, UAW-CIO; Charles Kerrigan, UAW-CIO; Kenneth Phillips, IAM-AFL; Al Schrader, IAM-AFL; and R. J. Thomas, UAW-CIO. Their resolution urged:

"That an Interdepartmental Government Committee be created under the jurisdiction of the Office of War Mobilization and Reconversion to conduct an immediate survey and draw up concrete plans for utilization in the postwar period of aircraft facilities and aircraft workers. Representatives of labor and industry shall be chosen to act as consultants to this committee. Membership on the committee should include: War Production Board, War Manpower Commission, Surplus Property Board, Commerce Department, Civil Aeronautics Administration, Civil Aeronautics Board, Army and Navy."

Estimates of postwar utilization of existing aircraft facilities and of employment of workers in the production of aircraft depend upon three unknown factors, said Henry Nelson, director of WPB's Aircraft Division. They are the size of the postwar Air Forces and the amount Congress will appropriate for their use; the amount of civilian demand for air transport and private planes, and the requirements of foreign countries for U. S. planes.

Union and government officials estimate that there are between three and four million Americans trained as aircraft workers. In 1939 the industry employed 64,000 with an average age of 23, which means the vast majority were drafted without holding any other job. A total of about 300,000 aircraft workers have gone into the service and will be returning with seniority rights (there were 10,000 drafted from Willow Run alone.) The Army and Navy have trained 1,500,000 men to service aircraft during the war, who will presumably want postwar jobs in the industry.

In contrast to the 64,000 employes before the war, there were 1,643,000 employes in March, 1945 in airframe, engine, propeller, glider, modification center, direct subcontractor and Government-furnished-equipment plants. About 40% of this total is women and about 43% are employed in airframe plants. But the total number of trained aircraft workers is greatly enlarged by the fact that the industry had to train about 65% or 70% more workers during the war because of the high rate of draft calls and the rapid turnover.

Wright Sees 12-Fold Employment Increase

An aviation industry employing in the United States 12 times as many people as it did before the war, carrying 20 million passengers a year on United States airlines for 3c a mile and furnishing "the primary police medium for a collective security system" was predicted for 10 years after the war by T. P. Wright, Administrator of Civil Aeronautics, in an address delivered in London May 31.

In the 33d Wilbur Wright Memorial lecture delivered before the Royal Aeronautic Society, Wright also declared that we are "on the threshold of the greatest period of aeronautical development that has yet been witnessed."

He cited as items which may revolutionize aviation technique the gas turbine and jet power plant. These, along with aerodynamic developments, will make possible transcending the speed of sound in the not-too-distant future; electronic devices which will make all weather operations safe and practicable; an advanced design of private owner planes with which the helicopter "will supplement the air transport plane as the automobile does the railroad."

At the first meeting of the new International Civil Aviation organization, Wright forecast that there will be "an appropriate reconciliation effected between the views of those who consider world air transport as an essentially political matter on the one hand or as an economic one on the other."

United Director—Eric Johnston, president of the U. S. Chamber of Commerce, has been elected a director of United Air Lines, taking the place of Sumner Sewall, who recently became president of American Export Airlines.

Glen Woodmansee Named CAA General Counsel

Glen D. Woodmansee has been named general counsel of the Civil Aeronautics Administration. He came to Washington as a lawyer in the solicitor's office of the Department of Commerce in 1933. He served there for about five years and in that time worked on the early regulations of the Bureau of Air Commerce.

Woodmansee

When the Civil Aeronautics Authority was organized in 1938, he became chief of the enforcement section, and when the authority was reorganized into the Civil Aeronautics Administration and the Civil Aeronautics Board, he became assistant general counsel of the CAA. He has served as acting general counsel since the resignation of Webb Shadle last November.

Lockheed Employes Cast Strike Vote

Employes of Lockheed Aircraft Corp., Burbank, Calif., in the first strike vote cast in a west coast aircraft company since Pearl Harbor, on May 21 balloted by 2 to 1 in favor of a strike.

Four issues are involved in grievances which led to the strike vote. They center around a March BWW WLB directive granting five cents on hour increases in maximum scales set for the four top skilled labor grades in aircraft industry, but at the same time eliminating the specialists grades and pay differentials.

The second issue is flight pay for mechanics and radio installation men. The third issue involves a petition to WLB by the International Association of Machinists (AFL), UAW-CIO, and United Aircraft Welders for an investigation of industry practices in upgrading and downgrading.

Fourth issue involved is the renegotiation of the working contract between Lockheed and Lodge 727, IAM. Hearings have been held before the WLB but that agency ordered the contract proposals returned for further negotiation.

Robert E. Gross, Lockheed president, said on learning of the strike vote that it was a "bitter disappointment."

"I would not have thought it possible that an organization on record with a no strike pledge could vote to break that pledge. I hope these (strike) leaders realize the full implication of these responsibilities."

Tabulation of Aircraft Export Figures for 1942

THE UNITED STATES exported aircraft products valued at $1,348,989,763 in 1942, the Department of Commerce reveals. The figures, compiled by the Machinery and Motive Products Unit, Division of Industrial Economy, Bureau of Foreign and Domestic Commerce, include lend-lease shipments but do not include products sent to the Army and Navy.

In 1941, aircraft products valued at $626,929,352 were exported, the British Empire receiving the bulk of the goods, Egypt ranking second, the Netherlands Indies third, and Russia fourth. In 1942, the Empire held the lead, but Russia had moved into second place, Egypt ran third, and China, an also-ran in 1941, came fourth.

Export totals for 1933 through 1941:

1933	$ 9,180,328
1934	17,662,938
1935	14,290,843
1936	23,143,203
1937	39,404,469
1938	68,227,689
1939	117,807,212
1940	311,871,473
1941	626,989,352

	Military Landplanes (*Including trainers, gliders and partial assemblies*)		Transports		Flying Boats (*Including seaplanes, amphibians and partial assemblies*)		Engines		Accessories, Instruments, & Parts
	Number	Dollars	Number	Dollars	Number	Dollars	Number	Dollars	Dollars
Greenland	.....	.....	.....	.....	.....	.....	.....	.....	$ 198
Canada	791	$ 25,742,550	11	$ 955,529	8	$ 1,326,459	6,747	$ 45,758,104	66,848,182
Iceland	.....	.....	.....	.....	.....	.....	1	3,400	36,636
Newfoundland & Labrador	.....	.....	.....	.....	.....	.....	.....	.....	8,651
Mexico	100	2,027,758	43	1,714,580	.....	.....	75	101,027	613,279
Guatemala	.....	.....	4	60,000	.....	.....	6	12,000	47,972
El Salvador	4	89,286	.....	.....	.....	.....	.....	.....	2,049
Honduras	1	10,000	1	80,000	.....	.....	.....	.....	22,746
Nicaragua	5	35,512	.....	.....	.....	.....	2	5,070	7,614
Costa Rica	1	2,400	.....	.....	.....	.....	5	1,260	52,452
Panama, Republic of	.....	.....	.....	.....	.....	.....	1	414	5,588
Panama, Canal Zone	.....	.....	.....	.....	.....	.....	2	7,000	148,478
Bermuda	.....	.....	.....	.....	.....	168	.....	.....	25,322
Bahamas	14	2,326,767	.....	.....	.....	.....	.....	.....	301,112
Cuba	38	981,994	2	222,000	.....	.....	13	26,269	140,420
Jamaica	12	485,592	.....	.....	.....	.....	.....	.....	1,157,631
Colombia	16	328,365	.....	.....	.....	.....	4	11,100	146,712
Venezuela	3	31,500	3	187,000	.....	.....	46	146,085	108,446
Ecuador	30	613,343	1	50,750	.....	.....	2	11,700	60,828
Peru	64	2,556,445	4	376,500	.....	.....	30	254,586	722,888
Bolivia	6	132,828	.....	.....	.....	.....	1	12,038	279,915
Chile	31	1,152,689	.....	.....	3	222,594	13	27,699	246,391
Brazil	414	9,907,634	40	1,706,282	2	4,613	99	254,513	788,040
Uruguay	34	540,036	.....	.....	6	480,000	2	15,000	90,291
Argentina	35	65,466	.....	.....	.....	.....	77	142,343	335,941
United Kingdom	2,976	308,786,223	137	5,691,896	1	6,700	4,905	86,083,883	117,030,861
Russia	2,561	262,168,742	1	154,157	8	253,416	330	5,188,308	47,095,023
Azores	.....	.....	4	191,086	.....	.....	2	17,130	4,847
Turkey	50	2,023,700	.....	.....	.....	.....	12	138,289	769,305
Syria	.....	.....	19	70,611	.....	.....	.....	.....	.....
Iraq	69	11,947,810	2	331,518	.....	.....	26	414,882	1,254,234
Iran (Persia)	.....	.....	.....	.....	.....	.....	.....	.....	42,014
India (and dependencies)	445	29,618,147	4	581,444	.....	.....	87	771,056	7,579,710
Ceylon	15	768,422	.....	.....	6	1,200,000	24	289,511	1,186,703
Netherlands Indies	112	11,801,932	5	345,700	52	8,366,357	24	197,295	932,340
China	432	26,181,010	16	2,053,068	.....	.....	163	1,163,254	7,529,861
Australia	228	17,038,044	.....	.....	1	23,803	1,167	10,387,262	11,243,332
New Zealand	108	7,737,348	.....	.....	.....	.....	57	362,368	2,071,263
Egypt	838	77,113,975	23	2,260,529	.....	.....	530	7,332,147	32,372,756
Anglo-Egyptian Sudan	12	1,906,090	.....	.....	.....	.....	7	70,834	626,513
French Equatorial Africa	3	62,046	.....	.....	.....	.....	3	13,936	18,643
Gold Coast	193	21,803,232	75	10,833,825	1	63,000	55	526,738	1,555,495
Belgian Congo	1	1,828	.....	.....	.....	.....	.....	.....	19,871
Eastern Italian Africa	10	643,340	.....	.....	.....	.....	.....	.....	528,851
British East Africa	30	2,040,000	.....	.....	.....	.....	.....	.....	142,502
Union of South Africa	282	11,083,498	5	703,680	.....	.....	12	173,814	4,142,320
Southern Rhodesia	.....	.....	.....	.....	.....	.....	20	133,812	208,575
		$839,865,552		$28,570,153		$11,947,110		$160,054,147	$308,552,801

Grand Total $1,348,989,763

Government Controls All Airlines in Argentina

Stringent controls over all commercial aviation operations are imposed by Argentina's new air law. It may mean the end of cabotage traffic within the country by Pan American-Grace Airways.

Domestic traffic will be handled only by joint companies in which Government and private capital participate. Such existing airlines as Aeroposta Argentina and the Corporacion Sudamericana de Servicios Aereos must reorganize to permit Government participation. Only Argentine capital owned by native resident Argentines may be invested in domestic airlines and the State will control all capital invested in joint companies.

Panagra, which has had some domestic traffic on its international route, now loses its rights to that traffic, but will continue to handle it until a new joint Argentine company has been formed.

The law permits foreign international airlines to operate into Argentina in accordance with the agreements reached at the International Civil Aviation Conference in Chicago.

The law makes no modifications in the existing control of the export and import of aeronautic materials.

Tombs Acting Secretary Of IATA Executive Group

Dr. Laurence C. Tombs, vice president of Guy Tombs, Ltd., and a former member of the League of Nations Secretariat, has been appointed acting secretary, on loan from his company, of the executive committee of the newly formed International Air Transport Association. Headquarters for the association have been set up in the Central Terminal Building of the Canadian National Railways.

Report from Canada

Election Campaign Sees Debates Over Cross-Country Air Routes

One Candidate Wants TCA to Touch Calgary

By AUSTIN F. CROSS

THE current election campaign has brought new speculation on future cross-Canada air routes. George Ross, Liberal candidate for Calgary East, during a campaign speech, has made the flat prediction that some time in the future TCA will operate via Calgary.

Up till now TCA has gone from Regina to Lethbridge, thus by-passing Calgary by more than one hundred miles and obliging Alberta's great southern city to depend on shuttle air service. Why the original survey was designed to avoid Calgary and service a comparatively unimportant Lethbridge area is always giving cause to speculation. However, the fact is that Lethbridge was chosen and Lethbridge is now used.

In this country you never can tell about politicians promises: They have a way of being realized. Take the Montreal C.N.R. terminal for instance. Who could imagine that the words of Mayor Houde would come true and work would stop on this gigantic scheme! Who could see either that the promise made by a French Canadian politician during a byelection in St. Henri riding, Montreal, would also come true and that work would be resumed on the Canadian National terminal station. Thus no one can afford to overlook predictions that TCA will someday start operating via Calgary.

Cost May Be Prohibitive

Lesser officials in Ottawa are apt to pooh-pooh the whole thing, advancing as reasons against it the cost of new service, the engineering of new routes and so on. These may seem like obstacles to unimaginative people, to routinists and to those who have the minds of auditors, but politicians can brush aside such items as a million dollars with a sweep of a hand. So, those who for political purposes think nothing of letting the country in for ten or twenty million dollars would not stop twice in putting Calgary on the main line if there were enough votes in it. The plain truth is, of course, that most Canadians would prefer to fly through Calgary rather than little Lethbridge.

But there is also another exciting possibility. Up till now northern centers like Saskatoon, Prince Albert, North Battleford in Saskatchewan, as well as Edmonton in Alberta, have been overlooked entirely on any transcontinental airline. Thus air passengers for Northern Saskatchewan and Northern Alberta have been obliged to take shuttle planes. That in itself would not seem so great an inconvenience were it not for the fact that the Canadian public is conditioned to two transcontinental railways.

For twenty-five years now the Canadian National Railways have operated daily service from Winnipeg to Saskatoon and on through Edmonton. The residents of these nothern centers resent having to fly down to the southern end of the province to Regina in Saskatchewan, or Lethbridge in Alberta to get a transcontinental plane.

There is the interesting parallel of the Canadian Pacific Railway operating a transcontinental line across the Southern side prairie provinces while the Canadian National Railway operates a transcontinental service through the northern end of the prairie provinces. If the railways can operate transcontinental lines through both north and south why cannot the airways? It is all very well for the technical staff to give 100 reasons why they cannot but the public and the politicians are the ones who, after all, have the final say and if they want a northern transcontinental route the chances are they will get it. Anybody who looks at the map of the prairie will realize right away that the rapidly growing northern end will not put up forever with sub-line and shuttle service.

The European end of the war is over and Canada is already making long range postwar aviation plans. Up till now Parliament has pretty well left the airways alone but it is a safe bet that in the next session of the House of Commons there will be some questions asked as to why the south has a transcontinental air service on a main line basis while the northern end is still being serviced by branch line planes. It would only take the presence in Ottawa of two or three powerful figures from the north end of the province to inaugurate a new northern route. Indeed, even a casual look at the map will indicate that Canada must expand north aerially as well as commercially, since she has no other way to expand. If she goes south—a matter of about one-quarter hour by plane—she is across the line in the United States, but if she goes north she can fly to the Arctic Circle and well beyond and still never be outside Canadian territory. It is natural then that she should expand north.

Today in official circles the operating personnel and small fry air officials are laughing off a northern route. Those who know their political history, however, believe that a northern air transcontinental line is destined to come within the next five years.

Wilson Visits Pacific To Plan Air Services

J. A. Wilson, Director of Canadian Air Services, has visited New Zealand and Australia recently to discuss plans for the establishment of British Commonwealth aviation services in the Pacific after the war.

J. A. Wilson, Director of Canadian Air Services, left, is shown after arriving in New Zealand by Tasman Empire Airways from Australia. With him is Wing Commander J. Buckeridge, Acting Controller of Civil Aviation in New Zealand.

On his arrival in Wellington, N. Z., Wilson said:

"Canada is very greatly interested in her share of Pacific aviation, and I think we will be actively interested very soon. Landplanes would be used, following the now well established Pacific route to New Zealand, with calls at Honolulu, Canton and Fiji."

Whether Canadian planes would fly direct from Vancouver to Honolulu, or would fly down the Pacific Coast to a Californian airfield, thus shortening the first and longest Pacific hop from 2700 to 2400 miles, is still to be determined, he explained.

New Actions on World Air Agreements

The State Dept. has revealed the following previously unannounced actions on international aviation agreements stemming from the Chicago International Civil Aviation Conference:

The Minister of Ireland advised that signatures of the Irish delegation to the interim agreement constitute an acceptance by the Government which is binding.

Sir Girja Shankar Bajpai, Agent General for India, advised that signatures on behalf of India to the interim and transit agreements are binding upon the Government of India.

Dr. Don Felipe Vega-Gomez, charge d'Affaires ad interim of El Salvador, signed the interim agreement, transit agreement, transport agreement, and the Convention.

Don Samuel Lewis, Ambassador of Panama, signed the interim agreement.

Census-Taking by Air

The airplane is being used by a Florida state census enumerator in tracking down Seminole Indians in the Everglades and reaching inhabitants of the Florida keys. Flying out from Embry-Riddle School of Aviation's seaplane base in Miami, W. Dewey Hilsabeck, enumerator for Dade County, was able to visit all the keys in his territory in one afternoon, while formerly the job took more than a day by boat. To locate the Indians, Hilsabeck flew over the Everglades and spotted their homes. Then he sent a census representative by 'glades buggy or canoe, with Indian guide, to get the information.

Transport Plane, Not Bomber, War's Biggest Development, Says Wayne Parrish

THE biggest thing to come out of this war in the field of aviation is not the bomber, but the transport plane, "and it is the transport plane with its great commercial uses which will lead the way for tomorrow's aviation development," Wayne W. Parrish, editor and publisher of *American Aviation*, declared last fortnight.

Delivering the commencement address at the University of Omaha, May 21, Parrish said that on a great many occasions in this war it has been seen that the transport airplane has been the all-important key.

For example, he pointed out that General Patton's fast movements through France and Germany were made possible by the transport airplane delivering fuel and equipment as needed. The transport's role in delivering mail and passengers to the war theaters has also been important, he said.

Parrish paid tribute to Glenn L. Martin, president of the Glenn L. Martin Co., who received the honorary degree of Doctor of Science from Omaha University at the commencement exercises. He characterized Martin as "a living symbol of everything in American aviation today."

"There is no other individual and no other company in the world, to my knowledge, with such a continuous background embracing without interruption almost the entire history of the airplane itself," Parrish said.

Parrish said it was important to remember that in the development of aviation, national defense "was always given as one of the justifications" for expending government funds. He added that "it is a good thing that this justification was given for we were woefully unprepared in the air when war came upon us and our civil and commercial resources were critically needed."

He said the country's pre-war air transportation system was the nucleus from which came the development of a global air system capable of supporting 3000 transport planes flying 250,000 miles of routes in all parts of the world.

Parrish predicted that developments in jet propulsion and gas turbines has upped the goal of commercial air transport cruising speeds from 250 to 270 miles an hour to 400 and 500 miles an hour. The result will be tremendous savings in travel time for mail, passengers and cargo.

As in the case of the railroad and motor car, the airplane is extending the distance "we consider close," he said, adding that aircraft "is bringing a large part of the world into the . . . limit of comfortable travel time."

"There is only one disturbing factor in the world war transport outlook, and that is the danger that the airplane will be restricted in its usefulness by political or private strangleholds," he said.

"A single international airline for the United States cannot by any stretch of the imagination provide this country with the frequency and type of service which we need to operate to various parts of the world.

"What we need is an extension of our sensible domestic competitive pattern into the foreign field and thereby providing comparative economic yardsticks among the various companies."

With respect to aviation training and education, he said that, in his opinion, too much emphasis has been placed upon how to obtain jobs within aviation.

"I would say that a far more important emphasis should be placed on learning how, or getting ideas how, air transportation can be used beneficially for other lines of work and in other industries . . . The real opportunities are in finding new means of utilizing the airplane, for we are just in the very beginning of the air age."

Touching on private flying, he cautioned that care must be taken not to "boom private flying too rapidly or we may have a sharp rise and a sharp fall in the production and sales curves as we have had several times previously."

U. of Omaha Honors Martin

Glenn L. Martin, president of The Glenn L. Martin Co., and chairman of the board of the Martin-Nebraska Co., Omaha, was awarded the honorary degree of Doctor of Science by the University of Omaha at the school's commencement exercises May 21.

In voting to confer the degree—the third such degree given in the school's history—the board of regents said that it "recognizes his outstanding achievement in the application of scientific research, his international reputation in aeronautical engineering and his public service to this country and the world at large."

In conferring the degree, President Rowland Haynes said: "It is appropriate that the University of Omaha honor a man who has done so much for this city. Mr. Martin's readiness to accept this degree in turn does signal honor to the University of Omaha."

Gets 2nd Degree—Glenn L. Martin (left), president of the manufacturing organization which bears his name, is shown with Persident William E. Wickenden of Case School of Applied Science, Cleveland, during ceremony when Martin was awarded the honorary degree of Doctor of Engineering.

Domestic Lines Get Six Surplus Transport Planes

Domestic air carriers received six and a foreign applicant three surplus transport planes in the 12th allocation of this type of aircraft by the Surplus Property Board. The planes are non-standard to military specifications.

This allocation brought to 208 the total number of surplus transports allocated thus far. Domestic applicants received 128 and foreign applicants 80.

In the 12th allocation, domestic applicants received the following (all are DC-3 type): Transcontinental & Western Air 2, United Air Lines 2, and American Airlines and Pan American Airways, one each. The foreign applicant was the government of Czechoslovakia, which received three, all DC-3 types.

In addition, two Lockheed Electra transports were allocated to TACA Airways, S. A. These were not included in the totals above.

Major Sturhahn Becomes T. P. Wright's Assistant

Appointment of Major Edward M. Sturhahn as his executive assistant is announced by T. P. Wright, Administrator of Civil Aeronautics. Major Sturhahn, upon the request of Secretary of Commerce Wallace, has been released from the Aircraft Scheduling Unit of the Army Air Force, by the Secretary of War to assume his new duties.

Sturhahn

As President and General Manager of Dixie Flying Service in 1929, Sturhahn was one of the pioneers in scheduled airline operation, inaugurating the first scheduled airline to carry passengers south out of Washington. The route extended to Greensboro, N. C. by way of Charlottesville, Lynchburg, and Danville, Va. Dixie Flying Service also operated the Richmond, Charlottesville, and Danville Airports under Sturhahn's direction; student instruction, airplane sales, maintenance, and other enterprises were the main functions of these fields.

Major Sturhahn became purchasing agent for Eastern Air Lines at Atlanta, Ga. in 1933 and, for the past three years, has been recorder and assistant administrator of the Aircraft Scheduling Unit, first as a War Production Board employee, then as a Major in the Army Air Force.

Pilot Views Crew Fatigue As a Major Flight Hazard

Suggested Remedies Are Taken From Author's Own Flying Experience

By FRANCIS A. SPENCER

(Author's Note: While this article deals mainly with single crew transoceanic operations using C-54 equipment, the points made are in general, applicable to domestic commercial operation.)

IN RECENT MONTHS, as a result of increased allocations and greater utilization of equipment, and because of a scarcity of trained personnel, airline flight crews under contract to the army have been asked to fly and have flown more and more hours per month. The medical profession, after careful study, found that, in peacetime, regularly scheduled operation 85 hours a month was the maximum which crews could be expected to fly consistently and maintain health and efficiency. Wartime Army ATC regulations specify a maximum of 300 hours in any three-month period. Complaints of individual crew members of chronic fatigue, and airline medical records of an increased number of failures of physical examinations as the 100 hour per month figure is approached and passed, focuses attention on the problem of crew fatigue.

It is not clear that the Army, airline operating officials, or aircraft manufacturers have paid close attention to the very real problem of fatigue. Too often, fatigue has been considered unimportant and something which is inherent in flying. It may be suggested that airline officials, from a postwar economic viewpoint, might find it profitable in terms of dollars and cents as well as morale and safety to see if a few simple steps could not be taken which would markedly reduce crew fatigue. While with present operating practices and equipment 85 hours seems the very limit of safe operation for extended periods, it is not impossible that with different equipment and practices, at least on trans-oceanic operations with an adequate crew complement, that longer hours might be feasible. Let us look at the present causes of crew fatigue and at what may be done to eliminate them.

Causes Summarized

Causes of crew fatigue may be summarized under the following heads:

1. Unscientific scheduling
2. Inadequate relaxation in flight
3. Noise
4. Altitude
5. Vibration
6. Uncomfortable cockpit
   a. Heating
   b. Lighting
   c. Seating
7. Length of flight

It will be noted that neither of the first two items, nor the seventh, can be attributed to the aircraft or engine manufacturer. The first two, schedules and relaxation, are entirely independent of the plane, while the seventh, length of flight, is connected to plane manufacture only through the cruising speed.

On current transoceanic contract ATC operations, one of the greatest of all causes of fatigue is unscientific scheduling, or, to put it more bluntly, the virtual lack of crew scheduling at any except the originating base. It is not for this writer to weigh the importance of the cargo getting through regardless of crew condition, but only to report the facts as to the causes of crew fatigue. It often happens that despite the fact that outgoing crew members make every effort to obtain rest in such a way as to be fresh for their trip, they are called just as they are going to bed. As a result it is not unusual for a crew to be starting out on a 10 or 12 hour grueling trip in a tired condition.

Crews Cannot Plan Sleep

The cause of this situation lays mainly in the policy of sending planes out as fast as they arrive and, secondarily, in alternate routings because of weather and in inadequate communications with respect to dispatching of aircraft at various stations. Suppose a carrier has a "schedule" of 8 trips a day out of its home base. A reasonable effort is made to get these trips out on schedule, but the effort does not appear to be as successful as on domestic commercial passenger runs. Once the ship is out of the main base it does not appear that anyone enroute gives further attention to the schedules which come out nicely printed the first of each month. At each station there is a standard amount of ground time allowed, such as one hour. Station personnel bend every effort to get the plane out of their station with as little ground time as possible. If a trip is early it is not held for scheduled departure but is pushed out at the earliest moment. As a result crews have no way of knowing when they are supposed to go out, let alone when they will go out. A crew may be on the ground anywhere from 4 or 5 hours to several days. Should the home station get an excessive amount of ships in one day, it very likely will send out extra sections even though it might mean fewer trips the next day. In short the policy dictated by military desires to have high aircraft utilization with little regard for schedules, gives rise to a large amount of crew fatigue resulting from the crews being unable to plan their sleep so as to be fresh for their trips.

The cure for this situation would be a genuine attempt to run a scheduled operation at all stations. This would involve, among other things, staging crews in such a manner that at each enroute point they would have about 16 hours on the ground. At the turn-around base, a layover of 32 hours is recommended. Insofar as possible a 24 hour layover should be avoided. The reason for a 16 or 32 hour layover as against a 24 is that in the latter case a crew coming in off a long trip is dead tired and immediately goes to sleep for about 12 hours. The crew then awakes and cannot sleep again for about 12 to 16 hours which is just the time they are scheduled to start on another trip.

Assuming for the moment that a crew does start out fairly rested, it is unlikely that it will arrive at the destination after a 10 or 12 hour flight in good condition for a difficult approach to a terminal if each man has had to be on the alert every minute of the trip. Just as in office work, factory work, athletics, etc. a person engaged in flying needs periods of relaxation during the normal working period. In transoceanic flying such relaxation can be provided by proper crew coordination under the supervision of the captain. In this respect, many captains do try to see that various crew members do get some rest in flight. Other captains honestly feel that the very nature of flying is such that each crew member must be at his station at all times. As a result there is a great lack of standardization among different crews.

The cure for fatigue induced by long hours of flight or for in-flight fatigue which was the carry-over from insufficient rest on the ground is relief from all duties for one or two-hour periods during the flight. Under normal good weather conditions at cruising altitude, adequate coverage of the cockpit is certainly afforded by having two men at the controls. Thus the captain, first officer, and flight engineer could spell one another. It is hardly conceivable that anything could happen to jeopardize the flight in less time than it would take the third man to get from the crew room to the cockpit. In many cases, on one of the contract carriers, there are never more than two at the controls except during take-off and landing anyway, the flight engineer remaining in the crew room and coming up every hour for instrument readings, blower shifts, and horsepower changes.

Rest Period for Navigator

Since the terminals on the North Atlantic are well supplied with radio ranges the navigator's busiest periods are normally from a period one to two hours out to within one or two hours of destination. Accordingly, the best time for the navigator to rest, if rest is necessary, is immediately after checking the compass with the astrocompass at the top of climb. The pilots can easily check the drift with the automatic direction finder and drift meter. This can be supplemented by the radio altimeter. On approaching a station after a long trip at high altitude, when the radio range comes booming in strong and clear, when the ADF needle settles down, and when these two indicators check with where the navigator figured the position, then the navigator can in perfect safety be permitted a little relaxation in the form of bunk time or just plain wandering around.

In view of the lack of familiarity with rapid Morse code on the part of other

About the Author:

F. A. Spencer formerly flew for American Airlines on its Burbank-El Paso run, then was transferred to the company's transatlantic operations. He previously flew foreign routes for TWA. An article by Spencer on cockpit design appeared in *American Aviation* August 1, 1944. Another article, in support of a flight engineer as the third most important member of any four-engined plane crew, was published in this magazine November 15, 1944.

crew members, rest for the radio officer technically presents more of a problem. New Radio equipment about to be placed in ATC aircraft may permit a greater use of voice transmission in which case another crew member could guard the frequency while the radio officer obtained some needed rest. In bad weather when there is virtually no radio reception possible, the radio officer could very well, with no loss of flight safety, procure relaxation.

Noise

It is a well known fact that noise is a very real source of fatigue. In this respect aircraft and engine manufacturers have not reached the limit of their talents. The cockpits of commercial and Army transports possess a noise level far above that of the average passenger cabin. An examination of the situation reveals that the reason for this is the complete lack of soundproofing of certain parts and inadequate soundproofing of other parts of the cockpit.

The cure for this unnecessary condition might be a regulation that airline cockpits have a noise level no higher than that of the passenger cabin.

Altitude

Another well known fact that needs little discussion is that fatigue is a function of altitude. On flights as low as 8,000 feet when made over a long period the lack of oxygen is noticeable. At 10,000 feet, and above, fatigue and loss of efficiency is rather quickly felt unless oxygen is supplied.

The cure for fatigue caused by high altitude is either a pressure cabin or oxygen masks. Of course, oxygen masks are currently supplied to flight crews but their utility is far below what is claimed for them. Flight crews fail to use the masks any where near as much as they should, not because of a feeling that the masks are not necessary but because the masks are so ill fitting and even cause pain when worn for a long period. So far, at least to the writer's knowledge and experience, a comfortable mask has not been designed.

Vibration

Another point at which the aircraft and engine manufacturer could aid in the reduction of flying fatigue lies in minimizing vibration. In this respect the jet planes have much to offer. Current transport aircraft have a habit of giving crew members a constant vibrator treatment not unlike that obtained on a machine in an exercise room. It is hoped that in the future, improved engine mounts and dampening will reduce vibration to a marked degree.

Uncomfortable Cockpit

Scientific studies have shown that a worker's efficiency is improved and his fatigue is lessened if he works in well lighted, well ventilated, comfortable surroundings. Unfortunately current transoceanic aircraft fall far short of this standard. Reliance for heat in the forward cockpit is on a nose heater which is run by gasoline in much the same manner as an automobile gasoline heater. This apparatus, advertisements to the contrary notwithstanding, usually provides either a stifling volume of hot, very dry air which hurts the eyes, nose, and ears, or no heat at all through some failure in the system. At times, unpleasant and perhaps dangerous odors are emitted. The heater is either on or off and no such simple thing as a mixing or dump value is provided to control the volume of heat supplied.

The heater is so unsatisfactory as to type and amount of heat put out, as well as to reliability, particularly at high altitudes, that an entirely new method of heating should be devised. Until this can be done, the best approach would be the installation of a value which would permit the mixing of varying amounts of outside cold air with hot air which has passed through the heater.

At least two other features of the cockpit could be markedly improved to lessen fatigue, namely, instrument lighting and cockpit seats. Some aircraft have only fluorescent lighting. To many pilots, the resulting contrast at night of the black background and brightly lit scales and needles is very tiring on the eyes. After long periods, one's eyeballs feel like they are being drawn out of their very sockets. The flat exterior incandescent lighting, where it is supplied, results in a glare or impairs outside vision. A substantial improvement in the lighting system would be afforded by centralizing the flight instruments in a group provided with rim lighting controlled by the rheostat. It is said that red lighting is more restful. As yet the author has had no experience with this type of lighting and can, therefore, offer no comment.

At present, a certain amount of fatigue results from the fact that the seats seem to become uncomfortable in a relatively short time. More specifically, the average pilot must hunch over in a round shouldered manner and fly with an unnecessarily long reach for his arms. The cure for this type of fatigue cannot be found overnight as it involves not only redesigning the pilot chairs but also probably a somewhat differently shaped control column as well as a rework of the rudder pedals, both as to form and placement. As to the chairs, it is suggested that the back be made to tilt in somewhat the same manner as do the passenger chairs, that more resiliency be added, that greater fore and aft travel be furnished, that the arms be adjustable, and that a headrest be possibly included. As to the control column, it is suggested that either the base be moved ahead and the rigging changed, or a different shaped column be used so that the control wheel in level flight would rest closer to the pilot's lap thus being within easier reach. It is, of course, recognized that there is a limit placed on such a change by the distance rearward it is necessary for the control column to come on landing. Thus, if the movement were too great the pilot might have to adjust the seat to the rear a little before each landing. This should not be considered a valid objection, for many pilots change the position of their seat for landing anyway.

A redesigning of the rudder pedals and their placement might well not only reduce fatigue but also result in a smoother ride for passengers. For many pilots, particularly short ones of which there are many, the pedals are almost out of reach if their seat is adjusted to a high position. In addition, to work the pedals from that position requires the ankle to be flexed at a very sharp angle and thus is very tiresome. As a result, except in very rough air, many pilots never touch the rudder except during low approaches, take-offs and landings. It is suggested that rudder pedals of the type found on some deluxe private 4 and 5 passenger ships before the war be provided. These pedals would be larger than the current type and would be formed to fit the shape of a shoe. A metal loop over the toe of each pedal would enable a pilot to use the upward pressure of one foot and downward pressure of the other to overcome the effect of high wind on the ground and thus prevent the rudder from banging against the stops. The pedals would also be adjustable as to the angle they made with the floor in order that a pilot could sit comfortably with his feet in a normal position.

Length of Flight

It is obvious that, other things being equal, fatigue is a function of the length of flight. Under present conditions crews are up a minimum of about 4 hours before takeoff or too often it is 12 or more hours. In this situation, given present equipment, it is the writer's experience that, on the average, any flight over 8 hours, without rest in flight, results in fatigue which is above that which is desirable. There is no cure for this type of fatigue other than limiting single crew operations to flights of a length which will not induce an undesirable amount of lassitude.

Summary

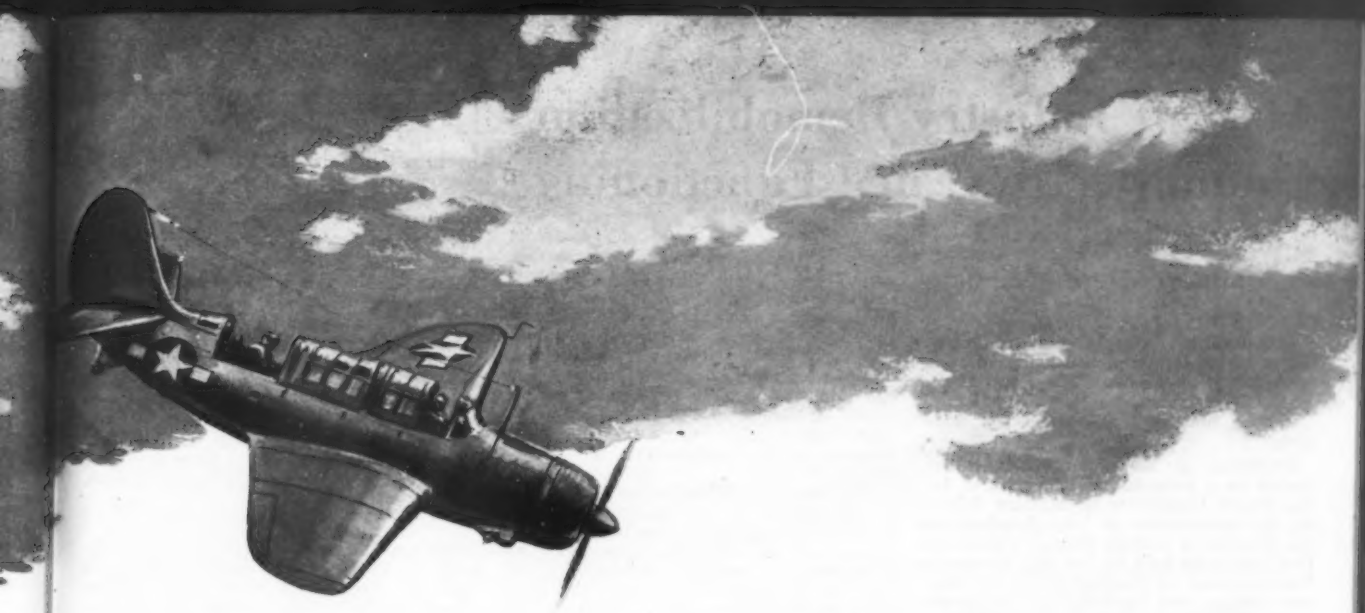
The increased tempo of transatlantic contract carrier operations in the last few months has resulted in flying crews above the limit of long-run human endurance. It is suggested that the proper authorities give consideration to attempting to run a scheduled operation comparable to that of domestic commercial airlines and that rest periods of 16 or 32 hours be provided where possible. The advantages of regular schedules might well more than compensate for a loss here and there of an hour or two of utilization. It is also suggested that official approval be given to the practice of some captains of affording crew members, in flight, rest where conditions permit.

Crew fatigue may also be attacked by the makers of the planes, engines, and accessories. Reduction in noise and vibration level should be goals of the airplane and engine manufacturer while the design of a wearable oxygen mask, healthful, reliable heaters, comfortable seats, and restful lighting may be problems for the accessory companies.

Horses by Air

Allen Chase, president of Aerovias Azteca, S. A., new Mexican airline preparing to start in Mexico, recently flew a polo pony from Los Angeles to Mexico City in a Budd transport plane which Azteca leased from the RFC. The pony was a gift to President Avila Camacho of Mexico. Chase believes the ability to fly horses to distant points means a bigger future for horse racing in the western hemisphere. The polo pony was accommodated in a separate compartment and protected by an elastic support. The flight required about 12 hours in contrast to a five or six day trip by rail or auto trailer.

From
Capt S A Cisler USNRR
FMHB 332 FPO
San Francisco, Calif
(Sender's complete address above)
To: Mr. J. E. Kenchie
Radio Corp. of America
718 Keith Bldg
Cleveland, Ohio
SEE INSTRUCTION NO. 9
(CENSOR'S STAMP)
25 Nov 1944
Dear Mr. Kenchie,
Many thanks for the copy of "Broadcast
News" which arrived this week. If you have any back copies I
would be glad to get them. We are trying to give our radio
and radar technicians interested in continuing in broadcasting
after the war some idea of the technical setup and find such
publications most valuable.
Sorry, I can't report in more detail
on my experiences or our equipment but we are a transient
outfit and censorship is tight. This is a dive bomber squadron,
flying SB2C Helldivers. RCA would be delighted to hear some of
the pilot comments on the RCA receiver we carry in this ship.
Thanks for your interest
see you in
S A Cisler
CHAS. ROSNER



RCA Radio in the Helldivers!

Sorry, I can't report in more detail on my experiences or our equipment but we are a transient outfit and censorship is tight. This is a dive bomber squadron, flying SB2C Helldivers. RCA would be delighted to hear some of the pilot comments on the RCA receiver we carry in this ship.

• Thanks, Captain Cisler. Your report, short though it may be, strikes us as a real compliment. The more so, in that it comes entirely unsolicited.

Dive bombing is a tough job. It takes men who are not afraid to tackle difficult and dangerous missions. And it requires equipment that can be counted on to continue working under the most punishing conditions. We're proud to know that RCA receivers have stood this test!

Shown at the right is the RCA receiver used in the Helldivers. This same unit is used in many other Navy planes. After the war, the same RCA engineers who equipped the Helldiver will design new commercial aircraft radio and altimeters to help make peacetime aviation safer, more reliable and more economical.

RCA Aviation Radio Receiver used in the SB2C Helldiver

RCA

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, NEW JERSEY

Aircraft Industry Demobilization Committee Revealed Functioning

Consists of War, Navy, Commerce Dept. Members

AN INFORMAL Interdepartmental Committee on the Demobilization of the Aircraft Industry, consisting of representatives of the War, Navy and Commerce Departments, has been functioning for some time, it was learned last fortnight.

Existence of the committee was revealed in a progress report prepared for the Senate Committee on Military Affairs on the preparation of joint hearings on the disposal of surplus aircraft plants and facilities to be held by the War Contracts Subcommittee of the Committee on Military Affairs, and the Industrial Reorganization Subcommittee of the Special Committee on Economic Policy and Planning.

In its first report, signed by Col. F. Trubee Davison, representing the Army Air Forces, Capt. L. D. Webb, representing the Navy Dept., and T. P. Wright, administrator of Civil Aeronautics, representing the Department of Commerce, the new committee stated that it has already undertaken a series of studies as follows:

Major Objectives of Study

1) Estimate of peacetime aircraft replacements and research and development activities for military purposes and for civil aviation.

2) Translation of such estimates into a picture of the peacetime operating aircraft industry.

3) Study of the experience gained in the aircraft expansion program for this war as an indication of what volume and rate of expansion can reasonably be expected in an emergency from the operating aircraft industry and from the conversion of non-aircraft facilities.

4) An appraisal of the cost and effectiveness of retaining facilities in stand-by and the extent to which they would supplement the operating industry and converted plants in a future expansion program.

5) Estimate of the numbers and types of aircraft needed by the services for a given rate of mobilization in a future emergency; consideration of alternative means, including stand-by, of meeting such mobilization requirements.

6) Study of the advisability and feasibility of attempting to influence a relocation of parts of the aircraft industry in order to reduce vulnerability to attack, to assure the availability of labor, etc.

The major factor in determining which plants will be utilized for peacetime production will be the procurement and research and development programs of the Army and Navy which are impossible to forecast with precision at the present time. The committee will therefore base its work in this direction on a range of tentative estimates which will be combined with studies made by the Department of Commerce on the potential growth of civil aviation after the war.

The report stresses the fact that the aircraft industry is a munitions industry and that this must be constantly borne in mind. It points out that lessons of this war have clearly illustrated the vital importance of maintaining technical progress and emphasized that reliance cannot be placed on mere numbers of aircraft. In effect, it states, the purpose of the Committee is to develop a working hypothesis for practical planning rather than to attempt a complete appraisal of the many dynamic technical factors which may eventually cause fundamental changes in the configuration of the industry.

The services are particularly interested in the ability of the peacetime aircraft industry to expand in the event of an emergency, and in this connection the Committee is retaining members of the Harvard Business School staff to work along with the services on a study of the lessons which can be learned from the spectacular achievements of the last few years.

On the question of stand-by facilities, one of the major problems facing the Committee, it states, is to determine whether a stand-by reserve actually means an industrial facility not currently used in the manufacture of peacetime products. It is argued, the report points out, that a plant in operation, with management and labor at work, an efficient network of subcontractors and suppliers, and the necessary community facilities provided, represents the most efficient reserve productive capacity for expansion to meet wartime demands; but in the opinion of the Committee it is doubtful whether a plant so used can be considered as reserve capacity.

One possibility advanced is that the Government might impose certain conditions in the leasing of specialized plants such as those built to assemble B-29s. These might include prohibition of permanent alterations which would interfere with rapid conversion to the assembly of large aircraft; a provision that the building could not be torn down or used for a purpose which would cause serious damage to its future use without Government consent; and a clause terminating the lease upon the declaration of a national emergency.

Industry Location Studied

Another part of the study will cover an examination of the different types of stand-by ranging all the way from the empty plant to that laid out for a large volume of production, with the basic machine tools in place and a small quantity of production actually being turned out by a pilot line.

One of the major problems facing the Committee will be the determination of location in order to provide greater security from attack and to tap the labor resources of the Central States. It is generally anticipated, the report states, that the industry will tend to return to its "home" plants and five years after the war it would not be surprising to find, as in 1939, about 80% of airframe floorspace, over 90% of the engine plants, and all of the propeller capacity located within 200 miles of the Atlantic, Pacific or Gulf coasts. The Committee says that it has no preconceived opinion as to whether this situation can or should be changed, but that it intends to explore such questions as whether some companies could be induced to move to inland, scattered locations and still operate as efficiently as in their pre-war locations; whether this would be costly to the Government or could be arranged by trading or leasing on reasonable terms; and what can be done about facilities for research and development work.

The Committee stressed that it is anxious to have constructive suggestions from the aircraft industry, and will call numerous witnesses when hearings are set. Oct. 1 was set as a tentative date for arrival at an over-all plan for aircraft industry demobilization and disposition of surplus plants and facilities. It was pointed out that with the "possibility" of the Japanese war ending before that date, interim progress reports will be made from time to time.

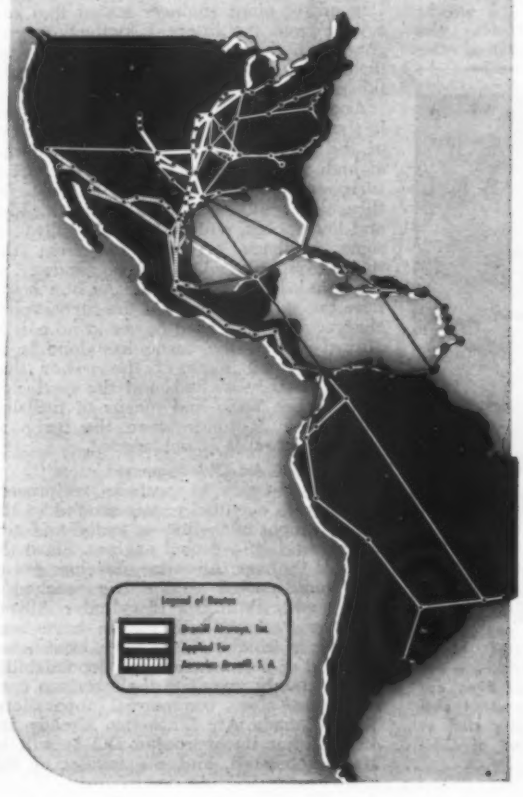
(Turn to page 38)

Public Relations Chief— Rear Admiral Harold B. 'Min' Miller has been recalled from Pearl Harbor to become director of public relations for the Navy.

Certain Advertising Costs Deductible, AAF Decides

Advertising in 15 aviation publications, including *American Aviation*, is a proper item of cost, reimbursable by the Government under cost-plus-fixed-fee contracts with aircraft manufacturers, military fiscal authorities have decided.

The ruling, made by Army Air Force auditors in connection with aircraft construction contracts held by Douglas Aircraft Corp., applies only to trade and technical publications. In the case where a contractor has sub-contractors abroad, the agreement provides that advertising may be carried in aviation journals of the country where the manufacturing is done.



...for the COMMON GOOD

The benefits of air transportation are shared by all who reside where air service is made available.

The creation of a system of air transportation in the Western Hemisphere, as proposed by Braniff Airways, will bring to all the benefits of increased trade and travel.

This means more jobs and more prosperity to those who live where distance and time are minimized by flight. It is an essential step in maintaining full employment and high national income in all the Americas.

BRANIFF AIRWAYS

Reciprocating Engine Field Has Countless Possibilities

Turbosupercharger With Jet Thrust Is Major Development

By SYDNEY CARTER

(This is the second of three articles on the postwar aircraft power picture. The third will deal with propeller developments.)

THE SAME general uncertainty which surrounds the respective spheres of the gas turbine and reciprocating engine in postwar commercial aviation is likewise evident within the limits of the reciprocating engine category. Developments such as water injection and fuel injection, turbosuperchargers with jet thrust, and the perfection of high-horsepower liquid cooled engines have opened up an almost unlimited number of possibilities. But which are adaptable to transport requirements is a question on which there is still no general agreement.

A typical case in point is water injection. Today water injection is being used on combat planes to provide tremendously increased horsepower for short periods of time. The Pratt & Whitney R-2800-C engine, for example, has a normal take-off rating of 2,100 hp and an emergency rating with water injection of over 2,500 hp. Applied to transport operation, this would apparently offer much needed extra horsepower for take-off and emergency procedures without requiring any increase in engine size or weight, and thus would prove of such tremendous value that there could be no doubt as to its commercial adoption.

Actually this is not the case. Airframe designers and airline engineers are inclined to be extremely hesitant about water injection for commercial aircraft. One of the most frequently raised objections is that while it does provide added power, it is injurious to the engine either because of the effect of the water or because the additional power imposes too great a strain on an engine designed for lower output. Both of these claims are disputed by power plant engineers who point out on the one hand that the water is actually beneficial to the engine, and on the other that a well balanced engine is well able to stand the increased output since the water promotes better cooling and reduces detonation and it is these factors rather than physical strains that are responsible for most failures.

Depends on CAA Attitude

Two far more serious problems were presented by a leading engine manufacturer who said that in his opinion the transport future of water injection would depend to a large extent on the attitude of the Civil Aeronautics Adminstration, and on the desired ratio of cruising speed to take-off power. In respect to the first of these points, a CAA representative stated that it would probably depend on the amount of water carried. Thus if an airplane carried enough water for 10 minutes' continuous operation, water injection power would most likely prove acceptable for the take-off configuration. However, if an operator wished to base emergency operations in other configurations on water injection power, he would have to carry enough water to permit continuous use for the maximum duration of the emergency. In some cases the weight of water involved would thus prove prohibitive.

The relation of cruising speed to take-off power is similarly a question in which the ultimate decision will rest with the operators, and it is quite possible that smaller engines with water injection may prove more economical for short haul service, while bigger engines with no need for added take-off power will prove more suitable for long range operations where high cruising speeds are increasingly important.

What About Fuel Injection?

Fuel injection as a replacement for carburetion is another possibility on which there is no general agreement. One engineer says that it offers fuel economies and additional safety. Another claims that the added weight penalties and complications of a fuel injection system more than offset any advantages which might be gained therefrom.

Actually, the fuel injection system is not a new development. At least one major engine company has been experimenting with fuel injection since 1930. Current interest seems to arise primarily from the fuel distribution problem growing out of an increased number of cylinders, and from the possible danger with larger engines of fires resulting from backfires and flashback. On radial engines in the 2,000 hp class, fuel injection imposes a weight penalty of about 70-75 lbs. over the normal carburetor. However, it does offer somewhat increased fuel economy on certain types of engines, and this might more than offset the weight, particularly over longer ranges. Another possibility with fuel injection is that it will make possible the use of the so-called low cost safety fuels, and in effect give diesel economy with the gasoline engine, although most engineers agree that the loss in performance would more than offset any gains resulting from lower fuel costs.

New Nacelles—The only visible difference between the new PBM-5 Mariner and the earlier PBM-3 is in the engine cowlings and airscoops which were redesigned for the new big 2,100 hp Pratt & Whitney R-2800-C engines. On the PBM-5, as shown here, the top scoop is cut off just aft of the cowl flaps, while on the PBM-3 it extended all the way to the forward edge of the cowl.

British Air Attache—Peter Masefield, well known British aviation writer, has been appointed to the newly created post of civil air attache on the British embassy staff at Washington by Britain's Minister of Civil Aviation Swinton.

One of the most important wartime developments in respect to postwar air transport is the turbosupercharger—exhaust jet combination, and many new advances in this connection can be expected. One power plant engineer stated that recovery from the internal combustion engine at high speed through exhaust jet thrust may actually be greater than from the propeller driving gas turbine.

Another possibility for the near future is the perfecting of means whereby some of the exhaust power now being utilized at high speeds and high altitudes to drive turbosuperchargers and for exhaust jet thrust, but still wasted at low altitudes and low speeds, will be harnessed through some feedback arrangements from the turbo to supply additional horsepower to the crankshaft at take-off. As one engineer put it, the claim that the turbosupercharger supplies added power at no cost is absurd. What the turbo has done is to begin utilizing some of the power that was previously wasted, and the next step is to devise ways and means of utilizing this power at times when the turbo as we now know it is not needed.

An Old Argument

Any discussion of postwar reciprocating engines eventually gets around to the old argument of in-line vs. radial and air-cooled vs. liquid-cooled engines. Since the start of the war, American development of the liquid-cooled engine has reached a new peak. Both the 12-cylinder Allison and the Packard-built Merlin have been proved in combat, and have established a record of performance and dependability that certainly warrants their serious consideration for commercial operations. Trans-Canada Air Lines has already indicated that its overocean DC-4s will be Merlin powered, and the results of this

installation will be watched with interest in this country.

The principal objections raised to the liquid-cooled engine are still maintenance difficulties, the question of whether or not its higher cruising powers will not shorten engine life, and the added problems of the coolant system. An obvious attempt to meet the first of these problems has been made in two recently announced experimental power plants—the Continental I-1430 (*American Aviation*, April 15). This is a 12-cylinder inverted V, developing 2,100 hp for take-off. It employs individual cylinder construction and is obviously designed to minimize the maintenance problem.

The question of the coolant system and its attendant difficulties gives rise to still another possibility—the in-line air-cooled engine as typified by the Ranger, which supposedly combines the advantages of better adaptability to streamlining and smoother performance claimed for the liquid-cooled engine with the advantages of air-cooling. To date the principal problem is that the Ranger is of comparatively low horsepower, the largest model yet announced being rated at only 700 hp. Some engineers believe that such a unit can be used, even in relatively large planes, by harnessing two or more engines to a single propeller. Others point out, however, that the added weight and complication of such an arrangement would more than likely offset any advantages inherent in the engines themselves.

Another possibility is that Ranger either has under development or might consider for postwar development a high-horsepower engine. It seems a logical step when one considers that its original model was a six-cylinder inverted in-line and that from there the company has progressed to a 12-cylinder inverted V. But assuming such a step is considered, the question arises as to how much this engine would differ from the highhorsepower air-cooled radials, since with the addition of more banks of cylinders, the in-line engine approaches the radial more and more in form, while the radial, through the addition of more rows of cylinders, approaches the in-line. In France, for example, a six-row radial with 42 cylinders has already been announced.

In conclusion it appears that the choice of power plants for the immediate postwar period lie between the Pratt & Whitney R-2800-C and the Wright R-3350 in the 2,000 plus hp. air-cooled class and the liquid-cooled Allison and Rolls-Royce Merlin. Still higher horsepowers will be offered by the 2,600 hp Allison V-3420 now being tested in the B-19 and an experimental B-29, and the 3,000 hp Pratt & Whitney Wasp Major, all details of which are still withheld because of military security. Whether reciprocating engines of still higher horsepowers will be developed seems to depend both on the progress of the gas turbine, and just how much additional horsepower can be obtained from present engines through water injection and similar improvements. Certainly such engines have been projected, but at present it would appear that the projects are being held in abeyance.

The Continental I-1430 is still too experimental to warrant immediate consideration by airline operators. On the basis of present information it would likewise appear that the Ranger will be limited as far as transport is concerned to the small feeder liners, at least until such time as it is available at a much higher horsepower rating than at present.

42-Cylinder Engine Shown

A 42-cylinder Matthis engine which was designed in 1937 and consists of six seven-cylinder radial units on one crankshaft was revealed at the recent aviation exhibition in Paris. The big power plant develops 2300 hp at 2000 rpm for a weight said to be one-third that of any other known engine of equal horsepower. The engine on exhibit was flown 100 hours in 1939, and was then hidden during the occupation. Engines of this type, however, are now reported to be in production, as well as a new engine built on the same principle, but developing 5000 hp. A similar 28-cylinder engine composed of seven-cylinder radial units was evolved during the occupation by Gnome-Rhone.

Inter-American Technicians Making Tour of Hemisphere

A TECHNICAL COMMITTEE of 12 air delegates to the Inter-American Defense Board last fortnight began an inspection of airfields and related installations in the U. S. and in each of the 20 American republic to gather information for an appraisal of the military aviation facilities of the Western Hemisphere.

The Board will make on-the-spot studies in each of the countries and on the basis of this information may transmit to the governments of the American republics any recommendations considered desirable for the improvement of air power in this hemisphere. The U. S. Army and Navy will cooperate in the studies.

The studies will be made in several sections, the first of which covers installations in the continental U. S. This section involved a 10-day inspection tour with stops at representative air bases of the armed forces in this country.

The survey, first of its kind ever undertaken by an international organization on a hemisphere-wide scale, was made possible by unanimous approval by the governments of the American Republics of Resolution XII, in which the Board recommended that its air officers make a technical study of the air organization of the Western Hemisphere and its possibilities for development.

Maj. Gen. Robert L. Walsh, air delegate to the Board, is chairman of the committee making the study. Other members are Brig. Antonio Parodi, Argentina; Gen. Armando Revoredo, Peru; Col. Oscar Morales Lopez, Guatemala; Col. Medardo Farias, Uruguay; Lt. Col. Alfredo Pacheco, Bolivia; Lt. Col. Clovis Monteiro Travassos, Brazil; Wing Commander Arturo Meneses, Chile; Lt. Col. Herman Baron, El Salvador; Maj. Josue Lopez Henriquez, Venezuela; Maj. Rafael Valdes, Colombia, and Maj. Eduardo Aldasoro Suarez, Mexico.

Among the factors to be weighed by the committee are the strategic and tactical value of existing airfields, their security from attack or sabotage, the need for additional fields to meet strategic and tactical requirements, meteorological and communications services, and other technical matters.

Latin American sections of the survey will begin after the study of installations in continental U. S. After concluding its hemisphere-wide study the committee will make its report to the Board, which is composed of military, naval and air officers appointed by the governments of the American Republics to study and recommend measures for the defense of this continent. Recommendations based on the committee's air power survey would be approved by the plenary Board in Washington before being forwarded to the governments.

Activities of Page Airways To Be Investigated by CAB

The Civil Aeronautics Board has ordered an investigation into the activities of Page Airways of Rochester, N. Y., on the grounds that the company is engaged in the solicitation and carriage by aircraft of persons and property for hire in possible violation of the Civil Aeronautics Act.

The investigation will take the form of a public hearing before a CAB examiner at a time and place to be announced later.

The Board in announcing its investigation, said that "there is reason to believe that the conduct of said service (carrying passengers and property in interstate commerce for hire) may be in violation of the provisions of the aforesaid Act, particularly section 401 (a) . . ."

Section 401 (a) provides that air carriers must have a certificate of convenience and necessity to engage in "any air transportation." The so-called non-scheduled air carriers have been operating without certificates, however, under an exemption order from the CAB.

The Board acted on its own initiative in ordering the investigation, but it obviously came as an aftermath of an accident at Washington National Airport April 27 in which a Page Airways' Lockheed Lodestar was destroyed. Six persons were killed.

CAA's Yarrow to Resign

J. R. Yarrow, Airport Turf Engineer, Airport Service, CAA, will join the firm of Airways Engineering Consultants, Inc., of Washington, D. C. as head of their airport and airpark turf development program. Before becoming turf engineer at CAA, Yarrow acted as Airport Project Review Engineer and Airport Service Representative to the Interdepartmental Air Traffic Control Board. For the past year he has been an advisory consultant to National Aeronautics Association.

Reading Plans for Postwar

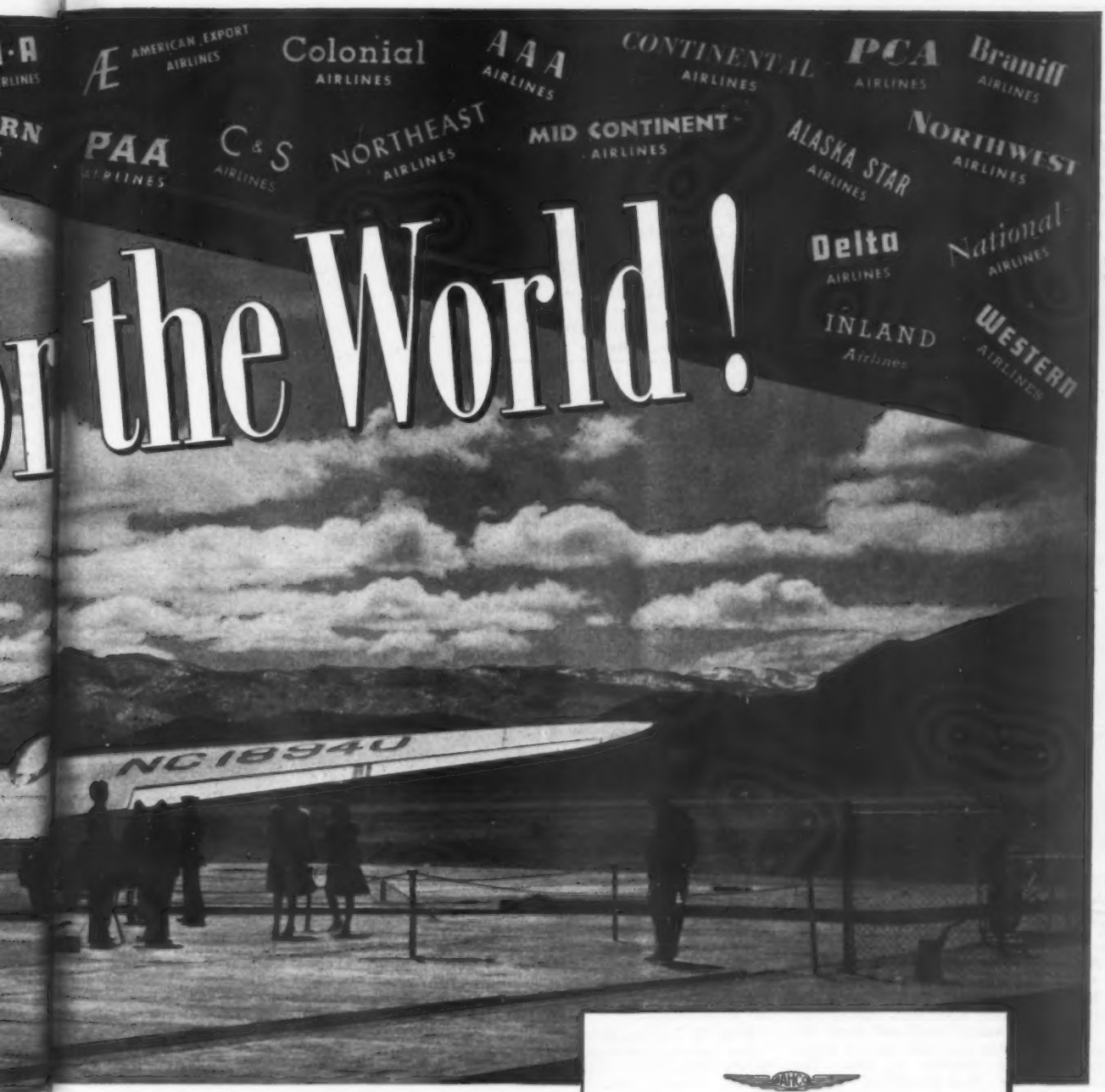
City officials of Reading, Pa., have announced the preparation of plans calling for the expenditure of from $500,000 to $1,000,000 for the reconversion of Reading Municipal Airport to civilian use in the postwar period. This information has been sent by city officials to the U. S. Conference of Mayors as evidence of the city's willingness to participate in any Federal Aid program which may be passed by Congress.

IMMEDIATELY after Pearl Harbor, the airlines gave up half their planes to a hard-pressed Uncle Sam. Then, as the tempo of war picked up and the nation demanded speed and more speed, the men and women who fly our sky routes turned in one of the greatest jobs in transportation history.

Working against terrific handicaps in shortage of equipment, the airlines carried more and more and more. Passengers and freight increased. The load ratio went from 59% in 1941 to an "impossible" 90% in 1944. Planes put in more and more hours per day . . . until many were flying eighteen out of twenty-four, and only perpetual overhaul kept them going.

Through three long, tough years, maintenance crews fought the battle of the monkey wrench to keep America's precious, time-saving handful of commercial ships in the air and on schedule. Month in and month out pilots flew them sweet and careful . . . nursed them for speed . . . hung up new safety records . . . delivered vital goods and people to keep the war effort running at an ever faster pace.

Today, with relief in sight, the airlines are pointing the way for postwar America and the world. Against high wartime operating costs, they recently announced rate cuts. Airline route mileage in U. S. is at an all-time high of 62,937 miles. Freight carried is nearly four times



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the prewar load. Total passenger miles last year were nearly a billion higher.

If air transport can do such a tremendous job in the face of warborn shortages of personnel and equipment, what will it do in peace! With a great body of schooled pilots and mechanics to draw upon and available equipment of a quality, carrying capacity and operating efficiency that were scarcely dreamed of in the prewar days, the sky's literally the limit!

It will be a privilege for us to join forces with this industry in building the coming Age of the Air!

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CAA Reorganizes for Efficiency, Expansion

THE Civil Aeronautics Administration placed in effect May 15 an organizational rearrangement which T. P. Wright, CAA Administrator, said was designed to prepare the agency for more efficient operation and expansion to meet postwar expansion in civil aviation.

Principal change was the designation of assistant administrators in charge of existing and new services, who, Wright said, "will have responsibility for the development and promulgation of technical and administrative policies, programs and standards governing the activities of the CAA in Washington and the field, domestic and foreign."

Charles I. Stanton continues as deputy administrator with additional duties, and on Wright's personal staff are four advisory committees and four special assistants reporting directly to him. The committees are Non-Scheduled Flying, Commerce-CAA State Legislation, Statistical Coordination and Executive Coordination.

The special assistants to Wright are Edward Sturhahn, executive assistant to the administrator; John H. Geisse, personal flying; Dean R. Brimhall, research, and E. J. Robins, state relations.

Also directly responsible to Wright are Hervey Law, manager of Washington National Airport; John E. Sommers, in charge of the Aircraft Control Office; Glen D. Woodmansee, general counsel, and a Plans and Performance Staff yet to be announced.

Under the rearrangement, Thomas B. Bourne, director of federal airways, became Assistant Administrator for federal airways, directing the operation of three services: Air navigation facilities, air navigation facility operations and technical development.

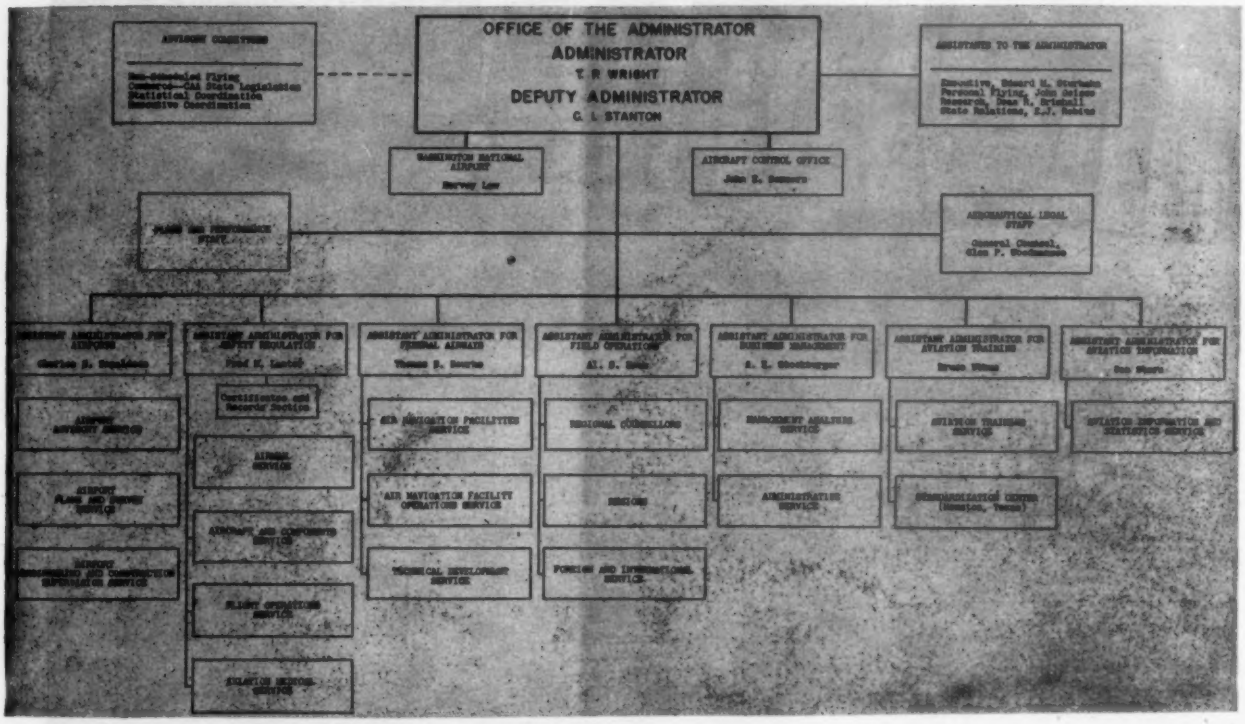
Fred M. Lanter, director, Saftey Regulation became assistant administrator for Safety Regulation, with four services to direct: Airman, aircraft and components, flight operations and aviation medical service. A certificate and records section is also part of safety regulation.

Charles B. Donaldson, director of Airports Service, became assistant administrator for Airports, directing three services: Airport advisory, airport plans and Survey and airport engineering and construction supervising.

Al S. Koch, assistant administrator for foreign operations, became assistant administrator for Field Operations, a new position, through which activities of the nine CAA regions will be coordinated from Washington.

Ben Stern, director of information and statistics, became assistant administrator for Aviation Information, and A. E. Stockburger, executive officer, became assistant administrator for Business Management. Bruce Uthus, manpower and training officer, became assistant administrator for Aviation Training.

The reorganization extends into the nine regions into which CAA is divided. Regional managers became regional administrators. In addition, there will be an assistant regional administrator in each region, and four special assistants will serve each administrator.



Super Photo Plane

The F-13-A, a photo reconnaissance version of the B-29, which has been making flights over the Japanese mainland in advance of B-29 raids, is revealed by Continental Air Lines, which has turned out all of these planes produced to date at its Denver Modification Center. The super photo plane carries six cameras in three complete installations, has greater range than the B-29, and has retained all the firepower of the Superfortress.

American Welcomes 'Neighbors'

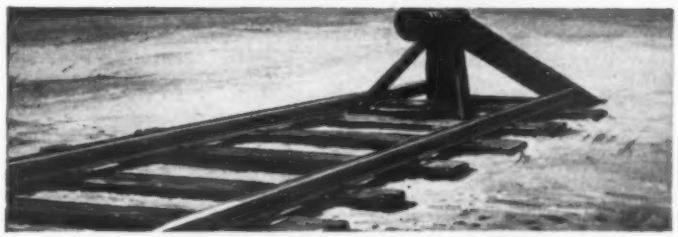
American Airlines gave wide circulation to an advertisement published on the occasion of the opening of the United Nations Conference in San Francisco. The advertisement was headed "Welcome, World Neighbors, to San Francisco." In several languages it called attention to the importance of world air transportation.

Austin Forms Air Division

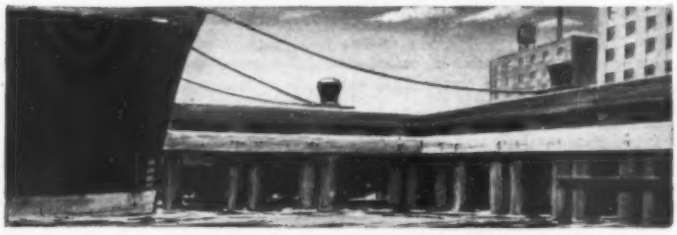
Anticipating far-reaching airline and airport development work in the immediate future, The Austin Company, engineers and builders, has announced establishment of a new Austin Aviation Division, with headquarters at Cleveland. The division will be headed by W. R. Engstrom, vice president, who has been district manager in the Pacific Northwest since 1933.

UNIVERSAL AIR IS ENDLESS

ALL MOTOR HIGHWAYS END.



ALL RAILROAD TRACKS END.



ALL WATER ROUTES END.

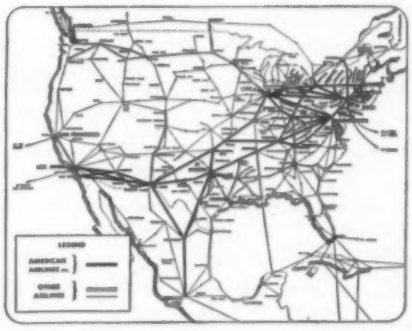
AIR surrounds our earth constantly, an inseparable part of our planet. "So What?"

This fundamental concept, deceptive in its very simplicity, is indispensable as a basis for an understanding of the air age.

We can no more escape the rapid changes inevitable in today's air age than we can escape air itself.

We shall continue to need motor vehicles, trains and ships. But these have geographic limits. Air, itself illimitable, offers illimitable opportunities in every phase of human life.

The adequacy of our civil air power will, in the last analysis, determine the success of every U. S. postwar plan. With this thought uppermost, American Airlines is preparing to offer more services, faster services and even better services—national and international.



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Legislation on National System Of Airports Faces Hostile House

Senate More Receptive To Federal Aid Bills

By GERARD B. DOBBEN

LEGISLATION to provide Federal aid in the construction of a national system of airports appears headed for more serious opposition in the House than in the Senate.

This prospect came to light during the first two days of hearings before the House Interstate and Foreign Commerce committee during which some of the more influential members of the committee indicated a rather critical attitude toward the National Airport Plan and some phases of proposed Federal-Aid legislation which would put the plan in effect.

The committee began hearings on H. R. 3170, a new Federal aid airport bill introduced by Rep. Clarence F. Lea (D., Calif.) who is chairman of the committee. Rep. Lea's bill, introduced May 9 or six days before the committee hearings started, provides for an appropriation of $650,000,000 over a 10-year period for airport construction. This sum would be matched by the States or sponsoring political units. Under the terms of the bill, either a State government or a municipality or county could enter into contract with the Federal government for the construction of an airport. The bill provides that the Federal government will share on a 50-50 basis the cost of obtaining the necessary sites and other easements or rights which may be required.

Henry A. Wallace, Secretary of Commerce and William A. M. Burden, assistant secretary of Commerce-Air, were the first witnesses. Their testimony was addressed generally to broader questions of need, national security and postwar employment rather than to the text of the bill itself. Their arguments followed generally the views which they had expressed a few weeks before during Senate committee hearings on S. 2.

The first signs of possible opposition came from Rep. Charles A. Wolverton (R., N. J.) who questioned the use of Federal funds for the construction of airports to be used largely by private flyers. He said if such a program was justified, why then should not the government finance railroad stations, bus depots and truck terminals.

Secretary Wallace was ready with an answer to this question. He recalled the land grants which had been made to the railroads, the tremendous amount of Federal money that has been used in building harbors and improving navigation facilities for shipping and Federal aid for highway construction. He reminded Rep. Wolverton that the highways were built largely for the use of the private automobile owner. Wallace ended his reply by quoting from a public statement by Alexander Hamilton wherein Hamilton advocated Government aid and encouragement for new economic developments—a principal which the Government later adopted in encouraging the building of transcontinental railroads and cross-country highways.

The hearing veered from airports for sometime when Rep. Carl Hinshaw (R., Calif.) asked Wallace why the Department of Commerce had been given the responsibility for a considerable portion of the surplus property disposal program, yet was not assigned the responsibility for aircraft disposal—a function which he felt should naturally be carried on by Commerce through the Civil Aeronautics Administration.

Secretary Wallace said that only the Treasury department had turned over to Commerce responsibility for disposal of its surplus, largely consumer type goods. He told Rep. Hinshaw however that CAA was working closely with RFC in the disposal of planes, largely through certification and testing procedures.

More closely related to the need for additional airports were the questions asked of Wallace and Burden by Rep. Richard F. Harless, (D., Ariz.) relating to pilot certification procedures. He said that if the Federal government planned to spend huge sums of money for airport construction, then it should facilitate and expedite in every way possible the pilot certification procedures. He pointed out that Arizona stood to lose, in a consolidation of offices, its lone CAA certificating agency which would make it necessary for Arizona citizens to deal with an office several hundred miles away.

Secretary Wallace said that pilot certification was going through the same evolution as was experienced when the automobile first appeared, and a driver, to obtain a permit, was required to know a good deal about the engine. He said Civil Air Regulations already had been relaxed considerably, pointing out that any registered physician could now make the physical examinations, that written tests on navigation and meteorology were no longer required. He added that he hoped the Civil Aeronautics Board would smooth the way as much as possible for the private flyer, without reducing the element of safety.

Assistant Secretary Burden said CAA has under consideration possible delegation of authority to airport owners and other industry representatives over matters pertaining to inspections and general supervision for the convenience of the local pilot.

"We are working on a five point program," Burden said "which includes: (1) Improvement of the aircraft itself—largely an industry problem; (2) Construction of airports so that the airplane can be useful to its owner; (3) Simplification of regulations pertaining to registration and flight; (4) Renewal of some kind of a program to take the place of the Civilian Pilot Training Program; (5) Extension of aviation education in the schools," he stated.

Favors By-passing States

During testimony by Charles B. Donaldson, director of Airports, CAA and John B. Bayard, Jr., chief of the Planning and Survey Division, Rep. Lea indicated by his questioning a definite preference for a Federal Aid program wherein the Federal government would largely bypass the State governments and deal directly with the local communities, under an arrangement somewhat similar to the public improvement projects which were made under the Federal Works Agency.

Charles B. Donaldson, director of airports, CAA, said he felt that this would create too great an administrative problem for the Civil Aeronautics Administrator. He recommended that Class I, II and III airports be administered at the State level. He said he felt that smaller communities, interested in smaller ports, should be tied in with the State program because they undoubtedly would need financial and other assistance from the State in order to meet the matching re-

House Group Holds Hearings On Scientific Research Bill

The House Military Affairs committee has held hearings on the May bill H. R. 2946 which would authorize the appropriation of funds for a permanent program of scientific research in the interest of national security.

Dr. Vannavar Bush, director of the Office of Scientific Research and Development, Dr. Frank B. Jewett, president of the National Academy of Sciences, Admiral A. H. Van Kuren, director of the Naval Research Laboratory and Brig. Gen. William A. Borden, in charge of new developments on the War Departments Special Staff, were the witnesses who appeared during two days of hearings.

The bill provides that the National Academy of Sciences, through a research report semi-annually to Congress its findrepresentatives of the Army, Navy and civilians of outstanding accomplishments, shall conduct the scientific research and report, semi-annually to Congress its findings and recommendations.

Mead Group Investigates C-W's Plant in Buffalo

The Mead War Investigating Committee discloses that it plans to check the accident record of planes built at the Buffalo, N. Y., plant of Curtiss-Wright Corp., with the records of comparable aircraft under comparable conditions.

Sen. James M. Mead (D., N. Y.) announced that such records have been requested from the War Department in connection with the committee's investigation into charges that the Buffalo plant has turned out inferior planes. Mead said the committee's chief investigator has spent two weeks at Buffalo interviewing witnesses, inspecting records and looking through the plant.

"On the basis of the investigator's report, the committee concluded that certain additional information is necessary before final determination can be made concerning the committee's next steps," Mead said.

It is understood that the committee investigator will accompany members of the Mead committee to Europe to check on the performance record of Curtiss-Wright planes in the war theatres. The subcommittee headed by Sen. Harley M. Kilgore (D., W. Va.) is making the trip primarily to study the surplus property disposal problem.

Orientation mechanically has now become a fact! Today a pilot or navigator can read directly from a dial his exact position in relation to the air mass through which he travels. With only a simple correction for drift he can establish, *with accuracy*, his geographical position as well. The instrument which makes this possible could only have come from Pioneer®, for the proper functioning of the Air Position Indicator depends in large part on true heading indications—and these in turn can be provided under all conditions only by the Pioneer-created Gyro Flux Gate® Compass. Again Pioneer's Creative Engineering points the way to greater flight security.

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Magnesium alloys—with the highest strength-weight ratio of all common structural metals—have a very definite place in this accomplishment. To achieve maximum cargo capacity, the Packet carries a minimum of dead weight. That's why several of its doors, for example, are made of magnesium. Included are the paratainer door, through which paratroopers' equipment is parachuted as they jump; the front and side nosewheel doors; and the life raft ejection door, on top of the fuselage.

Fairchild says: "Our use of magnesium in these various parts was determined by the fact that the material is exceptionally light in weight and can be used to great advantage in these places with comparatively little difficulty."

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quirements of the various bills under consideration.

Answering one of Rep. Lea's questions, Donaldson said he understood that there were only two states that had funds available today to participate in a Federal Aid matching program. Lea then brought out that most of the State legislatures would not be meeting again for at least two years. He added that as a usual thing cities are already prepared to cooperate in such a program. The committee chairman thought that as long as contracts would have to be signed with the Federal Government under either a State or local program that the administrative burden would not be altered materially if the entire program was projected at the local level.

Under the Lea bill H. R. 3170, the Federal Government would be empowered to deal with either State or municipality—which ever political subdivision had the funds with which to participate. Rep. Oren Harris (D., Ark.) asked if it was not feasible to provide that participation should be on an optional basis. Donaldson said he did not think so largely because of the additional administrative burdens which such an arrangement would impose on the Administrator.

Apparently influenced somewhat by criticisms of the plan made by State aviation officials, Rep. Carl Hinshaw (R., Calif.) wanted to know where the Federal program had originated. He expressed the viewpoint that it had originated in Washington rather than stemming from the needs and demands of States and municipalities. When Donaldson said CAA had been receiving hundreds of letters a month from States and committees urging the program, Rep. Hinshaw expressed the belief that this interest came about after the details of the plan had been announced and represented a desire to share in whatever Federal funds might become available.

Cities Protest Noise, Dangers

Rep. Hinshaw said he had definite knowledge that some cities do not want the smaller airports within or near their borders because of the noise and dangers involved. He said at least one city in California hoped that a nearby military airfield would be abandoned as soon as the war was over.

The Lea bill envisages Federal participation on a 50-50 basis in the cost of obtaining airport sites and other rights or easements which may be necessary. Here again some committee opposition came to light. Rep. Hinshaw said it was his understanding that the committee was on record against the Federal Government participating in the cost of acquiring sites. He felt that if the local communities were required to pay for the sites, the costs would be lower. He further attempted to show that CAA's estimates of cost on acquiring sites and easements might be far from accurate because there has been little precedent so far in the establishment of values.

Under the terms of the CAA Federal Airport plan, all cities of 1,000 population or more would eventually obtain an airport. Rep. L. Bulwinkle (D., N. C.) wondered if State funds were necessary to help finance airports for these smaller villages, whether there would be any real need or demand for an airport. John B. Bayard Jr., Chief of the Planning and Survey Division, CAA, said studies had revealed that villages of this size would have from two to two and one-half planes in the postwar period.

Rep. Joseph P. O'Hara (R., Minn.) asked whether the CAA airport program gave effect, in the allocation of funds to States, to military airports which later may be turned over for civilian use. He pointed out that his own state had not obtained military airports while other States had within their borders several large ports, built at government expense. Donaldson said the bill before the committee provided for a straight away allocation of funds on an area and population basis but he hoped that through reallocation of unused funds, this general condition might be rectified.

Rep. Hinshaw expressed the opinion that any airport program should be tied in with whatever civilian pilot training program may be adopted. Airports, he said, should be located so that high schools and colleges participating in the program would have flying field facilities. Bayard said that the CAA program was designed to carry out such an objective, as airports were to be located near most towns having high schools or Junior Colleges.

All of the government witnesses urged speed in the adoption of the program. Donaldson pointed out that at least 18 months would elapse between the date of authorization of the national program and the actual start of construction, due to planning and procedural requirements.

While it appears that Congress will adopt a federal aid airport program because of widespread demand and because of the stimulus which such a program will provide for a young and dynamic industry, it is evident that the House committee will be considerably more critical of the plan than the Senate committee.

One phase of this difference in attitude can be explained by the fact that a Senator serves an entire state and therefore seldom has or expresses a preference where public projects shall be undertaken as long as his state receives its fair share. On the other hand, representatives are looking out for their own districts and under a Federal aid plan administered at the local level of government, they undoubtedly would wield more influence in the location of airports submitted to Congress by the CAA Administrator for approval.

As this issue went to press, the House committee had not yet heard from the Conference of Governors, the National Association of Aviation Officials and the various aviation trade associations. These groups are preparing strong cases in the hope of getting a compromise which will be similar to the division set up in the McCarran bill S. 2. Under the provisions of S. 2, Class I, II and III airports would be placed in the Federal-State program and Class IV and larger in the Federal-Urban program.

CAA, CAB Will Get $46,837,000 Through Appropriation Measure

Joint Bill of Three Departments OK'd

THE Civil Aeronautics Administration and the Civil Aeronautics Board jointly will receive $46,837,000 for the fiscal year 1946 under the terms of the annual appropriation bill of the Departments of State, Justice and Commerce which passed the House and Senate during the middle of May. There was little doubt but that President Truman would sign the bill as passed.

In final form, following final votes on the Senate-House conference report, the CAA-CAB appropriation is $3,600,000 higher than the amount originally authorized when the bill first passed the House.

Major items in the bill affecting aviation are as follows: General administration, Office of Administrator, $2,878,000; establishment of air-navigation facilities, $12,577,000; maintenance and operation of air-navigation facilities, $24,000,000; technical development, $850,000; enforcement of safety regulations, $3,100,000; airport advisory service, $300,000; maintenance and operation of aircraft, $850,000; maintenance and operation of Washington National airport, $582,000; Civil Aeronautics Board, salaries and expenses, $1,675,000; printing and binding, $25,000.

One of the Senate amendments, agreed to by the House, provided for an increase of $175,000 for the development of swivel landing gear for airplanes and for radar investigations.

Eliminated in a final House vote, largely because of a parliamentary muddle, were such items as $402,000 for transoceanic radio range facilities; $790,000 for an automatic posting system on the Washington-New York Federal airway and $960,000 for a seadrome on the Azores air route to Europe which was to be used largely for weather forecasting.

These last three items had been added by Senate amendment but became involved with a $2,750,000 sum to be used for the construction of an airport in Kanawha County, W. Va., to compensate Charleston, W. Va. for an airport which it turned over to the government for a war plant site. During debate, it was pointed out that Charleston formerly received airline service from American and PCA and was deprived of service because of a lack of airport facilities.

Rep. Louis Rabaut (D., Mich.) and several members of the House conferees opposed the airport item and voted against it and with it went the appropriation for radio range facilities, the automatic posting system and the seadrome. Later, West Virginia representatives got a separate vote on the airport item and it carried.

The bill as passed contains a $10,000 item for conducting an in-flight weather reporting project at the Washington National Airport. This project contemplates using information received from pilots in flight by the Weather Bureau for distribution to all planes flying in an area covered by the reports.

AFL Executive Group Hits Separate Pacts

The American Federation of Labor's Executive council has come out flatly against the "Freedom of the Air" agreements promulgated at the International Civil Aviation conference held in Chicago last November, and recommends that agreements made by the State Department under Titles I, III and IV should be withdrawn or otherwise they should be immediately transmitted to the Senate for consideration as treaties.

Recommendations embodied in a statement recently released have been sent to Sen. Tom Connally (D., Tex.) chairman of the Foreign Relations Committee of the Senate, A. F. of L. officials stated.

"We believe that one of the most important issues confronting the United States government today is the question of 'Freedom of the Air'", the announcement stated. "Certain of the agreements signed at Chicago on Dec. 7, 1944 as a result of the International Civil Aviation Conference would work radical changes in the law of the United States—changes that would operate to the detriment of all American transportation, surface, sea, and air, both domestic and foreign."

"Congress must decide whether the historic licensing control of foreign flag airlines seeking to operate on international trade routes to the United States should be abandoned through adherence by the United States to Agreement III and Agreement IV negotiated at the Chicago Aviation Conference.

"We favor the U. S. continuing as contemplated under the CAA Act of 1938, the licensing of foreign flag airlines seeking to operate to American territory only after public hearings—through issuance of specific permits by the Civil Aeronautics Board after approval by the President—such permits containing appropriate restrictions and limitations as the long range interests of the United States require.

"American capital, if refused the right to operate on international service by our Government under the American flag, could organize under the laws of any signatory to the agreement and operate precisely the service which our Government had forbidden, without even being bound by the labor and safety standards to which it would have been subject under the American flag.

"We believe that the fundamental issues raised by the Agreements III and IV with respect to our national security and the economics of the entire transportation system should be reviewed by the Senate Foreign Relations Committee, and that the State Department should be instructed either to withdraw our Government's assert to agreements III and IV, or these Agreements should be immediately transmitted to the Senate for consideration as treaties."

Frequency Allocations Confirmed

The Federal Communications Commission has just made its final allocation of frequencies above 25 megacycles and in all cases has assigned for aviation use those frequencies set forth in its proposed allocation report earlier this year.

Demobilization Committee Functioning

(Continued from page 26)

Following is a list of the principal Government investments in aircraft production facilities (plants costing in excess of $5,000,000) as furnished to the Senate Committee on Military Affairs and its sub-committees in connection with studies which have been initiated to determine a policy for disposal of surplus aircraft plants and facilities:

Operator	Location	Authorized land, building, and other costs
Airframes and subassemblies:		
Bechtel-McCone-Parsons, Inc.	Birmingham, Ala.	$14,645,000
Bell Aircraft Corporation	Buffalo, N. Y.	13,364,000
Bell Aircraft Corporation	Marietta, Ga.	49,533,000
Boeing Aircraft Company	Renton, Wash.	16,839,000
Boeing Aircraft Company	Seattle, Wash.	7,821,000
Boeing Aircraft Company	Wichita, Kans.	19,503,000
Edw. G. Budd Manufacturing Co.	Philadelphia, Pa.	14,362,000
Chance Vought Aircraft Division, United Aircraft Corporation	Stratford, Conn.	11,769,000
Consolidated Vultee Aircraft Corp.	Allentown, Pa.	7,018,000
Consolidated Vultee Aircraft Corp.	Fort Worth, Tex.	43,176,000
Consolidated Vultee Aircraft Corp.	New Orleans, La.	8,767,000
Consolidated Vultee Aircraft Corp.	San Diego, Calif.	16,362,000
Consolidated Vultee Aircraft Corp.	Tucson, Ariz.	5,594,000
Curtiss-Wright Corporation	Buffalo, N. Y.	24,510 000
Curtiss-Wright Corporation	Columbus, Ohio	18,021,000
Curtiss-Wright Corporation	Louisville, Ky.	9,620,000
Curtiss-Wright Corporation	St. Louis, Mo.	12,596,000
Douglas Aircraft Co.	Chicago, Ill.	40,373,000
Douglas Aircraft Co.	El Segundo, Calif.	8,136,000
Douglas Aircraft Co.	Long Beach, Calif.	16,573,000
Douglas Aircraft Co.	Oklahoma City, Okla.	27,462,000
Douglas Aircraft Co.	Tulsa, Okla.	26,249,000
Eastern Aircraft Division, General Motors Corp.	Trenton, Tarrytown, and Baltimore	10,640,000
Eastern Aircraft Division, General Motors Corp.	Linden and Bloomfield, N. J.	8,219,000
Fairchild Engine & Airplane Corporation	Hagerstown, Md.	6,595,000
Fisher Body Division, General Motors Corp.	Cleveland, Ohio	19,607,000
Ford Motor Co.	Willow Run, Mich.	63,915,000
Goodyear Aircraft Corporation	Akron, Ohio	15,437,000
Grumman Aircraft Engineering Corporation	Bethpage, N. Y.	20,954,000
Higgins Aircraft Corporation	New Orleans, La.	24,311,000
Lockheed Aircraft Corporation	Burbank, Calif.	6,151,000
Glenn L. Martin Co.	Baltimore, Md.	26,149,000
Glenn L. Martin Co.	Omaha, Nebr.	19,147,000
Naval Aircraft Modification Unit	Johnsville, Pa.	5,773,000
North American Aviation	Dallas, Tex.	17,362,000
North American Aviation	Kansas City, Kans.	17,936,000
Republic Aviation Corporation	Evansville, Ind.	9,464,000
Republic Aviation Corporation	Farmingdale, N. Y.	12,134,000
Total		696,087,000
Machinery and production equipment provided for these plants		346,127,000
Total airframes and subassemblies		1,042,214,000
Engines:		
Allison Division, General Motors Corp.	Indianapolis, Ind.	20,254,000
Buick Motor Division, General Motors Corp.	Melrose Park, Ill. & Flint, Mich.	45,663,000
Chevrolet Motor Division, General Motors Corp.	Tonawanda, N. Y.	35,610,000
Dodge Division, Chrysler Corporation	Chicago, Ill.	81,528,000
Continental Aviation & Engine Co.	Muskegon, Mich.	9 166.000
Ford Motor Co.	Dearborn, Mich.	29,407,000
Jacobs Aircraft Engine Co.	Pottstown, Pa.	10,712,000
Nash-Kelvinator Corporation	Kenosha, Wis.	5,927,000
Pratt & Whitney Aircraft Corp. of Missouri	Kansas City, Mo.	32,947,000
Pratt & Whitney Aircraft Div., United Aircraft	East Hartford, Conn.	24,383,000
Studebaker Corporation	South Bend, Ind.	15,765,000
Studebaker Corporation	Chicago, Ill.	7,451,000
Wright Aeronautical Corporation	Lockland, Ohio	48,657,000
Wright Aeronautical Corporation	Patterson, N. J.	9,823,000
Wright Aeronautical Corporation	Woodbridge, N. J.	23,851,000
Total		401,144,000
Machinery and production equipment provided for these plants		867,367,000
Total engines		1,268,511,000

Operator	Location	Authorized land, building, and other costs
Propellers:		
Curtiss-Wright Corporation	Indianapolis, Ind.	7,801,000
Remington-Rand Inc.	Binghamton, N. Y.	5,987,000
Total		13,788,000
Machinery and production equipment provided for these plants		34,524,000
Total propellers		48,312,000
Airframe and engine accessories and parts:		
Allis-Chalmers Co.	Greenfield, Wis.	10,481,000
Cleveland Pneumatic Aerol, Inc.	Cleveland, Ohio	5,758,000
General Electric Co.	Fort Wayne, Ind.	8,718,000
Thompson Aircraft Products	Cleveland, Ohio	7,963,000
Total		32,920,000
Machinery and production equipment provided for these plants		65,419,000
Total accessories and parts		98,339,000
Turrets:		
Emerson Electric Co.	St. Louis, Mo.	6,142,000
Machinery and production equipment provided for this plant		8,854,000
Total turrets		14,996,000
Instruments:		
Sperry Gyroscope Co.	North Hempstead, N. Y.	18,508,000
Machinery and production equipment provided for this plant		20,894,000
Total instruments		39,402,000

SUMMARY

Type of production	Authorized cost: Land, building, and other costs	Authorized cost: Machinery and production equipment
Airframes and subassemblies	$696,087,000	$346,127,000
Engines	401,144,000	867,367,000
Propellers	13,788,000	34,524,000
Accessories and parts	32,920,000	65,419,000
Turrets	6,142,000	8,854,000
Instruments	18,508,000	20,894,000
Total in plants costing over $5,000,000	$1,168,589,000	$1,343,185,000
Investments in plants costing less than $5,000,000 and in converted plants	318,744,000	824,997,000
Grand total	$1,487,333,000	$2,168,182,000

NOTE: These figures on authorized costs are given in this form only to illustrate the approximate sizes of the individual plants and as a rough measure of the machinery and production equipment provided. They should not be used or interpreted as the exact cost of either plants or machinery because of variations in percentages of completion and changes in production requirements. In addition, the above list includes some "scrambled" plants; i.e., additions to prewar plants which are integrated with privately owned facilities.

RFC's Surplus Disposal Activities Coordinated

Reconstruction Finance Corp. has organized its surplus disposal activities into a coordinated unit, the Office of Surplus Property. Hans A. Klagsbrun, executive vice president and member of the board of Defense Plant Corp. will be director of the office. Joseph P. Woodlock, formerly with Crucible Steel Co. of America will be executive director.

James A. Garfield continues as deputy director in charge of aircraft disposal. Other deputy directors are George F. Buskie, administration; Sterling J. Foster, Jr., capital and producers goods disposal; and C. D. Williams, warehousing.

Under the new organization all surplus property will be handled by RFC itself rather than Defense Plant Corp. and other subsidiaries. Other key personnel of the Aircraft Disposal Division are Frank T. Conroy, general counsel; Finley T. White, special assistant to Garfield; Edward L. Traylor, head of aircraft disposal section; Thomas A. Wadden, head of administrative section; Col. A. R. Peterka, head of component disposal section; Russell Heddleston, head of education disposal section; and Stanford Stelle, head of maintenance and salvage section. The Aircraft Disposal Division is planning to prepare information on the way its organization operates in the near future.

Federal Loan Administrator John W. Snyder announced a plan to absorb the subsidiaries of RFC into the parent body. Under the program, RFC would absorb the Rubber Reserve Co., the Metals Reserve Co., Defense Plant Corp., Defense Supplies Corp and Disaster Loan Corp., in the interest of simplification and operating economy.

O'Mahoney, Biddle Urge Registration of Cartels

International business practices that fostered German militarism already are beginning to struggle back into existence, Sen. Joseph O'Mahoney (D., Wyo.) charged at the opening of hearings on his cartel registration bill.

Attorney General Biddle was among the witnesses to testify on the O'Mahoney bill before a joint meeting of the special Senate committee investigating petroleum reserves and a subcommittee of the Senate Judiciary Committee.

"The struggle for the re-establishment of the cartel system is now beginning," O'Mahoney said "and control of this system of doing business is one of the most difficult issues of postwar readjustment."

Biddle declared that many cartel arrangements disrupted during the European war "are now being resumed."

"There should be some compulsion for making public such agreements as those which existed between an American firm and a Japanese company by which as late as 1939, the American firm felt obligated to turn over to the Japanese some of the secrets for making aviation fuel. It is important, too, when an American company agrees not to sell aircraft parts in those countries of Europe which the German government, long before Munich, has decided to make completely dependent upon German supplies," Biddle added.

See Postwar Air Threat To U. S. Merchant Marine

The House Postwar Economic Policy and Planning Committee, in its sixth report to the House (No. 541) urges that thorough consideration be given to the problem of the U. S. Merchant Marine in meeting the competition of foreign steamship companies which will be permitted to operate international air transport services.

"The committee recognizes that the development of international air transportation will have important effects upon the operation of our vessels on international and intercoastal routes," the report stated.

However in making six specific recommendations for legislative treatment of postwar shipping problems, no reference is made to the question of permitting American steamship companies to enter the international air transport field—an issue which has frequently been debated in committee and on the floor of the House in recent years.

Sale of Surplus Gliders Set at Sheppard Field

A special sale of 58 surplus non-flyable gliders was scheduled to be held at Sheppard Field, Wichita Falls, Tex., June 1-3 by competitive bid under supervision of Reconstruction Finance Corp., which pointed out that the gliders were suitable for conversion into automobile trailers.

At the same time, RFC said that sales of 22 new nine-place Waco gliders at Americus, Ga., had gone very well, at a price of $875 each. About one-third of the 3000 primary trainer planes which were offered for sale early in May had been sold after the first 30 days, RFC said. The 1053 planes sold thus far have brought a total of $1,143,820.

Count on Stinson

FOR LEADERSHIP IN PERSONAL PLANES

THE FIRST STINSON PLANE BUILT, back in 1926, combined features new to the world of flying. Such innovations as enclosed cabin, wheel brakes, electric starter, and cabin heater made this 1926 Stinson a "standout."

And built into this first Stinson was an *inherent stability* that has been an outstanding characteristic of every Stinson plane built during our 19 years of leadership in private flying.

Stinson has pioneered in the development of safety devices and *safety design* for personal planes. As a result, Stinson planes have an unequalled safety record in the air.

SOME STINSON "FIRSTS" IN 19 YEARS OF BUILDING QUALITY PLANES

FIRST to fly from Detroit to Tokyo.

FIRST to fly from New York to Bermuda.

FIRST to carry air mail in China.

FIRST to carry government mail in Mexico and in the Philippines.

FIRST to explore the Greenland route to Europe, the present-day route of the North Atlantic Air Ferry.

FIRST to provide air-mail pickup service.

Stinson Planes for War

Wherever our men are fighting, on fronts around the globe, the Stinson Sentinel L-5, the "Flying Jeep," is a familiar and welcome sight.

These famous Stinson liaison planes serve as "air eyes" for the armed forces, as parachute supply planes on jungle commando missions, as flying ambulances, and on important and hazardous liaison duty—almost always in the thick of battle.

Here at home, Stinson Voyagers have carried out 65 per cent of the Civil Air Patrol's operations.

The Stinson Reliant AT19 is widely used by the British as a navigational trainer. And Stinson planes are used by almost every airline in the United States to train and check pilots.

The New Stinson Voyager 125

Here's the Stinson Voyager 125, the personal plane that we will be making as soon as war conditions permit.

It is a plane that combines the *safety* and *reliability* of the prewar Stinson Voyager with the *toughness* and *utility* of the "Flying Jeep."

Powered by a 125-h.p. engine, the Voyager 125 carries pilot and three passengers. It has a cruising range of 580 miles, a rate of climb of 670 feet per minute at sea level, and a service ceiling of 14,000 feet.

The Voyager 125 has a maximum speed of 128 m.p.h. and cruises at 116 m.p.h. It takes off, with flaps down, after a run of 550 feet, lands with a roll of 280 feet.

We invite inquiries about the new Stinson Voyager 125, and our plans for the production of personal planes.

For full information and free, illustrated brochure, write to Private Sales Director, Stinson Division, Consolidated Vultee Aircraft Corporation, Wayne, Mich.

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The Aircraft Standard of the World

DIVISION—CONSOLIDATED VULTEE AIRCRAFT CORPORATION
WAYNE, MICHIGAN

Air Traffic Conference Forms Three Specialized Departments

United's Crary Heads Executive Committee

REORGANIZATION of the Air Traffic Conference of America, a division of the Air Transport Association, into three specialized sections to handle passenger traffic, cargo traffic, and a tariff publication bureau was announced last fortnight. The change-over was effective June 1.

Under the new set-up, the three groups will operate under an overall assembly of airline traffic executives. The newly created divisions will replace the general conference, which in the past has handled all traffic and sales matters.

The overall assembly is comprised of vice-presidents-traffic or the general traffic manager of each airline. Officers of the assembly, which will constitute the executive committee of the Conference, are as follows:

President, Harold Crary, vice-president-traffic, United Air Lines; first vice-president, Charles E. Beard, vice-president-traffic, Braniff Airways; second vice-president, P. J. Carmichael, general traffic and sales manager, Continental Air Lines; executive secretary, M. F. Redfern of ATA. These officers will serve for an interim period until the first regularly called meeting is held.

The passenger traffic section is composed of passenger traffic managers of the various airlines, and will have jurisdiction over all passenger matters. Interim chairman is Willis G. Lipscomb, general traffic manager, American Airlines; vice-chairman, R. L. Heininger, general traffic manager, Chicago & Southern Air Lines; secretary, C. C. Hubbard of ATA.

The cargo section, comprised of cargo traffic chiefs, is headed by Harry R. Stringer, vice-president of All American Aviation, Wilmington, Del., as chairman. Guy M. Springer, air mail and cargo manager of Braniff Airways will serve as vice-chairman, and Emery Johnson of ATA as secretary.

The tariff publishing bureau will operate as a part of the Conference, with J. B. Walker as manager and W. D. Barrington, G. P. Weisiger and D. M. Berry as assistants and compilers

Such matters as improved baggage handling and uniform tickets will be given early consideration, ATA announced.

Public Counsel Wants Four Rate Cases Consolidated

Public Counsel has filed with CAB a motion seeking consolidation of four rate cases involving Eastern, American, United and TWA. The Board's show cause order proposed to reduce air mail rates from 60 to 32 cents a ton mile.

The desirability of such a unified proceeding was discussed recently when CAB Examiner Charles J. Frederick conducted prehearing conferences involving show cause orders filed with Eastern, American and TWA. Counsel for the airlines indicated they would oppose such a motion on the grounds that the facts and circumstances relating to each case would be different.

Plans of the carriers with reference to postwar expansion are to figure prominently in this case, it is believed. The carriers, it is understood, will attempt to show that any great reduction in their ability to accumulate surpluses will greatly affect their postwar expansion plans.

If the Board should grant Public Counsel's motion, it appears another prehearing conference, with all four carriers participating, will be necessary.

NWA Donates to Mayo Clinic

Northwest Airlines has given the Mayo Clinic, Rochester, Minn., $5,000 as a tribute to the clinic's contributions to both wartime and peacetime aviation in pioneering scientific researches, with especial attention to high altitude flying.

Airline Employment Expected to Rise

The Department of Labor estimates that in the fifth year after the war the prospective increase above present employment in all airline operations will range from 13,250 to 53,100. These estimates are based on the realization of traffic estimates made by Curtiss-Wright Corp., and Edward P. Warner, vice chairman of the CAB.

A break-down of nine occupational groups, showed these totals of postwar employment: Domestic operations, minimum 28,850, maximum 58,500; international operations, minimum 9,500, maximum 19,700; all airline operations, minimum 38,350, maximum 78,200.

The following table, prepared by the Labor Dept., gives the over-all estimates of airline employment for the fifth year after the war:

Occupational group	Post-war employment						Prospective increase above present employment in all air-line operations [1]	
	Domestic operations		International operations		All air-line operations			
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Total, selected occupations	28,850	58,500	9,500	19,700	38,350	78,200	13,250	53,100
Pilots	5,000	12,000	1,300	2,800	6,300	14,800	1,700	10,200
Flight engineers	400	900	300	900	700	1,800	100	1,200
Navigators	.....	.....	250	700	250	700	50	500
Flight radio operators	.....	.....	400	1,400	400	1,400	(2)	900
Stewards and stewardesses	3,300	6,600	700	1,400	4,000	8,000	2,700	6,700
Mechanics and assistants	15,000	30,000	5,000	10,000	20,000	40,000	6,400	26,400
Stock and stores employees	1,500	3,000	500	1,000	2,000	4,000	300	2,300
Dispatchers, meteorologists, and assistants	650	1,500	250	500	900	2,000	300	1,400
Communications operators, ground	3,000	4,500	800	1,000	3,800	5,500	1,800	3,500

[1] *In the case of pilots, the current employment estimate subtracted from the post-war employment figures was the previously cited estimate of 4,600 for the end of 1944, which is probably a little too low. For other occupations the figures deducted understate present employment somewhat more greatly, since only a partial adjustment could be made for military-contract activities and no adjustment was possible for employment trends since 1943 nor for certain other discrepancies. To the extent of this understatement, the prospective increase in employment above present employment levels is of course exaggerated.*

[2] *A net decrease of 100 is indicated.*

Candy Manufacturer Loses Suit Against Yerex, TACA

After hearing testimony for nearly two weeks, a jury in the United States Court in New York City brought in a verdict in favor of the defendants in a law suit brought by Kenneth Frank, Jr., against Lowell Yerex and TACA Airways, S. A. The verdict was rendered earlier this year but details were only recently made available.

Frank, who is in the candy business in Havana, Cuba, sued for $175,000 which he said was coming to him as a commission on the financing which TACA did in 1943. Some years ago he was interested in various airline enterprises in the U. S., and more recently had a part in organizing Expreso Aereo Inter-Americano, S. A., Cuban airline. He is no longer associated with the Expreso management athough he still owns a small block of stock.

Caribbean Freight Line To Be Inaugurated Soon

W. B. Haggerty, president of Tampa Cold Storage and Warehouse Corp., Tampa, Fla., who recently announced the formation of the Aero Transport Corp. to enter into a non-scheduled air freight business throughout the Caribbean area, expects to start his first operations shortly.

He has purchased 21 Stranrear flying boats in Canada and some of these have already been delivered to Tampa for servicing. The Stranrear is a 22,000 lb. gross load ship built by Vickers in England and powered with two 1050 h.p. Bristol engines.

With the first flights scheduled between Tampa and Havana, Haggerty says he expects to be servicing at least 100 ports in due course, engaging in cargo shipments of all kinds and especially perishables. A pilot himself, and having engaged in the perishable fruit business for many years, Haggerty said he considers freight to be the foundation of all transportation with air transport no exception. He holds patents on freezing equipment which he expects to utilize in his flying boats.

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ATC's Search and Rescue Unit In 'Hump' Area Tough Outfit

Comb Forbidding 'Rock Pile' in All Kinds of Weather to Save Lives

By ERIC BRAMLEY

CHABUA, ASSAM—Our plane was a slightly battered Douglas C-47 with a few bucket seats. It had no door. I was sitting on 500 pounds of high explosives, looking out of the window, observing that there was jungle immediately off our right wingtip.

I was flying with the Search and Rescue Unit of the India-China Division Air Transport Command, an outfit based in the Upper Assam Valley whose primary objective is the saving of lives. Day in and day out, in all kinds of weather, the Search and Rescue pilots comb the forbidding Hump area between India and China, searching for wrecks and looking for survivors.

We had left a base in the Chabua area that morning, flying over the famous "first ridge," that area of the Hump route where the majority of wrecks have occurred. We landed at a small airstrip in Burma, along Stilwell Road. From this airstrip, which is surrounded by imposing mountains on all sides, making approaches and takeoffs extremely difficult, an Army captain had taken off several days before to locate a wrecked C-46. Eight miles from the end of the runway, his small plane had engine trouble and crashed. The captain was seriously injured. Between him and the airstrip were eight miles of Burma's densest jungle and steepest ridges.

It took a Search and Rescue ground party two days to hack their way to the wreck. Accompanying them was the unit's flight surgeon, who determined the extent of the pilot's injuries and gave the opinion that it would be impossible to carry him out. Rescue from the air was the only possible solution.

The day I flew over the scene with Capt. Bill Davis, of Pampa, Texas, and Flight Officer J. B. Wall of Woodland, Wash., additional ground parties had reached the injured man and were already at work building up a platform against the side of the hill.

Air Currents Tricky

We circled over the wreck—circled in that narrow valley with its steep sides and tricky air currents—while Capt. Davis talked to the ground party by radio. Through my earphones I could hear the ground crew ask for TNT, medical supplies, shovels and other equipment. We returned to the airstrip and were back over the wreck in a short time with 500 pounds of TNT and the rest of the supplies. Low passes were made over the area, the "kickers" (skilled enlisted men) shoved the stuff out of the door and it parachuted safely down.

More than 10 tons of supplies, worth $20,000, were tumbled down into the jungle to save this one life. The air evacuation was successful.

To this reporter, who is accustomed to straight and level flying and who used to object when an airliner banked too steeply, this weaving up and down valleys, banking around mountains and buzzing over hills in a C-47 was something new and thrilling. It often seemed that if my foot had been out the door it would have been dragging through the treetops. One little slip by the pilot and we would have been down in the world's densest jungle, unexplored, where it would have taken us days or weeks to walk out—if we survived the crash.

To Search and Rescue, however, it was just another day's work. They are using the airline in a new and different—and worthwhile—manner.

In Search and Rescue's intelligence office is a huge, ceiling-high map showing the location of every Hump crash since 1942. The map is literally covered with small flags, for there have been many pilots who have lost their planes over the "Rock Pile" in the past three years. As wrecks occur, more flags are added.

Information From Many Sources

The unit receives its information from many sources. Pilots flying the Hump report sighting crashes or seeing flares or signs of life on the ground. Friendly natives bring in information. British political officers in outlying regions give assistance. Every source is utilized.

Each evening the pilots are briefed on the next day's work.

"Davis, in the Douglas, will drop more supplies to the ground party," says the intelligence officer. "Wall, in the B-25, search this area here—we have hot reports on three wrecks. Smith, in the other Douglas, drop food to those missionaries in the river gorge and ask them by radio if they have sighted any wrecks recently." And so on.

And the next day, 1st Lt. L. D. Smith, of Little Rock, Ark., takes off and makes

Natives, directed by a friendly missionary, are shown laying out panels on ground to advise ATC Search and Rescue plane: 'One Plane, All Crew Killed'. Arrow points in direction of crash.

Maj. Don Pricer (center), commanding officer of the Search and Rescue Unit of the India-China Division of the Air Transport Command, shows Eric Bramley (right), executive editor of 'American Aviation', map on which the location of a wrecked ACT ship is spotted. Maj. Roland L. Hedrick, intelligence officer of the unit, looks on.

an eight-hour trip over the very worst part of the Hump—a part that is seldom flown any more, where the peaks go up to 23,000 feet—drops his suppies in a tricky river gorge filled with down-drafts, and returns to his base.

Another pilot returned and wrote on his report, in routine fashion: "Took direct course to K—— from M—— and was searching the Chindwin Valley when 'Mayday' (distress signal) was picked up from C-46, heading into M——. Escorted the aircraft safely into M——," the C-46 had lost an engine, but made a safe landing, with the Search and Rescue B-25 watching over it in case the crew was forced to bail out.

I flew another mission with 20-year-old Flight Officer Wall, a routine search mission. We sighted four wrecks, but they had all been pinpointed before. But Wall, who handles a Douglas like he had been doing it for years, gave the mountains a thorough search. In one remote section we spotted a man, standing in the door of a small hut, waving a white cloth. It took three passes up an extremely narrow, twisting valley to ascertain that it was a native, just waving hello. After five hours, we returned home.

'Spell Out' Needs

Had we sighted a white man on the ground, Wall would have circled and dropped supplies and directions. The man on the ground would have signaled by tearing up his parachute and spelling out his needs. If he were injured, a flight surgeon would parachute to him. Otherwise, he would start walking. Every day, a Search and Rescue plane would be over him, directing him to civilization or to the nearest clearing where a lightplane could pick him up.

Search and Rescue, which previously had been functioning as part of another outfit, is now a full-fledged unit. Its commanding officer is Maj. Don Pricer, of Hill City, Kansas, a former music instructor—and a veteran Hump pilot. Intelligence is handled by Maj. Roland L. Hedrick, former Salt Lake City attorney, who probably knows more about the

"Oh, well—nothing ventured, nothing gained"

Everybody in aviation is familiar with the story that crops up about every six months of the engine that is "too powerful" for any plane. But somehow it never seems to take very long before somebody is flying a plane that takes all the power of the new engine—and even could use a bit more.

The point is that there just doesn't seem to be any limit to the amount of power the plane designers can *use*. What's more, the possibilities for developing more power through better than 100-octane gasoline also seem practically limitless.

For a time it seemed that aviation gasoline quality had leveled off at 100-octane number, but there is actually no such ceiling. Already, through the use of new processes and Ethyl fluid, petroleum refiners are producing gasoline of better than 100-octane. Thus it seems likely, that the post-war aviation industry will see gasolines of higher and higher antiknock quality and engines of higher and higher power.

Ethyl Corporation

CHRYSLER BUILDING, NEW YORK CITY

This hitherto unpublished photo shows the rough, uneven 800-ft. airstrip deep in the jungle, built to evacuate the injured survivor mentioned in adjoining story. The area is surrounded by high hills on all sides. The strip was used for two takeoffs, then abandoned.

Hump territory than any other man in the Army.

Maj. Pricer has explained the responsibilities of his command as follows: (1) searching for Allied aircraft within his assigned geographical area, (2) organizing and sending out ground parties to aid returning personnel, (3) to identify crashes and personnel, to perform burials of deceased personnel where it is not possible to carry the body to a military cemetery, to destroy all secret and classified equipment and documents, (4) check out all reports and observations from the air or ground sources, such as sighted crashes, parachutes, flares, signal panels, peculiar fires and smoke signals, (5) maintain a close liaison with political district commissioners, all ground and Air Force units, intelligence organizations, missionaries and any other rescue and aid group, (6) compiling and maintaining complete records and statistics regarding the status of missing planes and men, (7) pinpointing, photographing and identifying, if possible, all wrecks sighted and reported, (8) carrying out a program of trail building in uninhabited jungle areas over which flight lines pass, and placing food caches along these trails to aid personnel in walking out, (9) constructing clearings suitable for landing small liaison aircraft to bring aid to personnel downed in out-of-the-way places, (10) providing Allied military units which are cut off from supply and transport with materiel and men necessary for emergency requirements.

So well have these objectives been carried out that there are only two known cases where pilots have landed on the ground alive and have not been rescued. Eighty per cent of all planes down in 1944 were located.

The majority of the unit's pilots are between 21 and 25 years of age, and in March they flew 258 missions involving 994 hours and 50 minutes of combat time (their time is classified as combat flying). C-47s, B-25s, Stinson L-5s and Piper L-4s were used. In addition to food and clothing dropped to survivors, salt was dropped to natives, red blankets to Naga tribal chiefs, and silver rupees to reward natives.

The flying done by these pilots is among the toughest in the Air Forces. They're up at 6 a. m., flying by 7, generally back for lunch, and out again all afternoon. One pilot flew 132 hours last month. It's all low level, on-the-deck stuff, in hot, rough air, where one mistake can be fatal.

In addition to the pilots, there are three men in the outfit who deserve special mention. One of them, 1st Lt. William Diebold, of Pittsburgh, Pa., is probably the most-talked-about man. Reporting to Maj. Hedrick on his first day with the unit, Diebold was immediately asked if he had ever made a parachute jump—an injured man was lying in the jungle. He said no, but he would try. Two hours later he made his first jump. Since then he has made five jumps and is responsible for bringing out some 15 men. He is in the jungle again at this writing.

Likes Beating the Jungle

Often accompanying him is Staff Sgt. Harry Brenner, of Chicago, who also takes a special delight in beating the jungle.

When a survivor is in need of medical aid, Capt. Austin E. Lamberts, flight surgeon, from Fremont, Mich., jumps, does his job, and either walks out or is picked up by plane.

Early this year, a C-46 was reported missing with a large number of persons aboard. Several days later, Search and Rescue was informed by a tea planter that there was one survivor, who had been thrown 600 yards by the crash. Determining the location, Diebold and Brenner parachuted in, followed later by Capt. Lamberts.

They decided that, after a lot of blasting and leveling, a small air strip could be constructed. Its length would be about 800 feet. It would be soft and uneven, but a Stinson L-5 stretcher ship could probably get in.

"The field (see cut) that had been chosen for an airfield lay in the bend of a river and was surrounded on three sides by very steep, high hills," Capt. Lamberts relates. "The soil was sandy loam. The area had been jungle but the trees had been felled (by natives) and crops planted between the dead stumps. A preliminary survey by Lt. Diebold indicated that we could clear a fairly level air strip about 800 ft. long and 75 ft. wide. He had begun work the same evening he had arrived and had employed over 100 men, women and children for two and a half days to cut grass, carry logs and build a shelter for the patient, with only a promise of payment. He had not a rupee to pay them until we arrived.

Paid Off in Rupees

"The payline that night was something to see—hundreds of natives stretching out their hands for rupees, and Lt. Diebold trying to separate them into groups, and trying to figure out just which ones had actually worked, which ones were trying to get paid twice, and which ones had not put in their appearance until pay time."

Finally, the injured man was loaded into an L-5, borrowed from the 10th Air Force. "On the second trial, the plane finally staggered off the ground," Lamberts says. "It mushed along, and three quarters of a mile west of the strip it was still below tree top level, but by excellent maneuvering the plane finally gained sufficient altitude to make a turn." Later, Capt. Lamberts was flown out, but it was considered too risky to continue evacuations. Diebold and Brenner walked. The airstrip will never be used again—it will vanish with the monsoon. But it served its purpose—saving a man's life.

Looking for a wrecked airplane in the jungle is no easy task, for the jungle reclaims rapidly. Sometimes the plane may be burned, but during the monsoon there may be nothing but a drab-painted tail or wing to mark the spot.

Just how difficult a jungle search is—and how necessary air-ground cooperation is—is described by Lt. Diebold in an official report. A C-46 had run into trouble, and the crew parachuted. The pilot and co-pilot walked in, but the radio operator was missing. His parachute was sighted in a tree, far from civilization.

"A field was chosen near the parachute, and Sgt. Brenner and I parachuted down in an attempt to track the lad and find him in the jungle wastes," Diebold relates. "We encountered many unforeseen difficulties. First of all, I landed in a patch of high thorn bushes with inch-long stickers, and was cut up quite badly. Sgt. Brenner hit on uneven ground and wrenched his knee, thus making walking very difficult. Nevertheless, we started out in the direction of the chute with our L-5 flying top cover over us and giving us compass directions.

"The jungle where we were was so thick that cutting our way to the chute, now only two miles away, was next to impossible. At the suggestion of our L-5 pilot, Lt. Dock Hudson, we made our way to a stream. By the time we had cut our way to that stream it was becoming late, so we decided to make our

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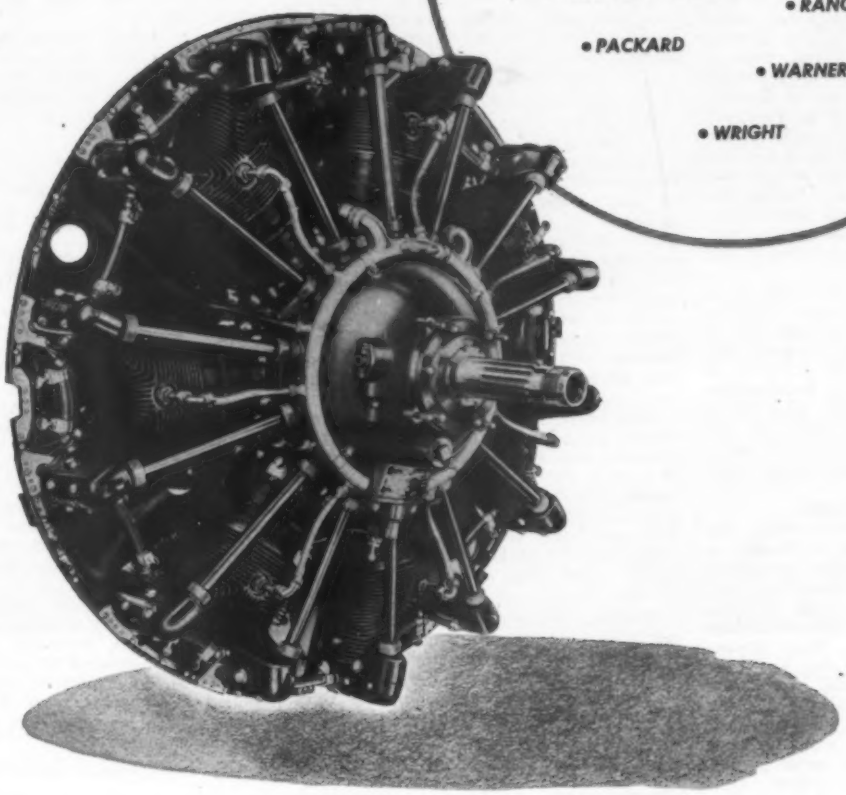

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camp there for the night and dress our wounds a little. The plan Lt. Hudson and I worked out via handie-talkie was to try, the next morning, to cut our way two miles on a compass course of 120 degrees.

"The next day, the second day, Sgt. Brenner and I began our cutting. We followed as best we could the compass direction given. The jungle was a dense mass of half-inch bamboo and elephant grass. It took about three minutes of solid cutting to move forward one step. The little L-5 couldn't see us, so via radio I described the various formations of bamboo around us and the pilot of the plane, after ascertaining where that was, would give us new compass courses.

"All went well until we hit quick mud. I say quick mud, although it was of a sandy nature. Sgt. Brenner went in and was up to his neck and sinking fast. I threw him a log and then a piece of parachute shroud line we always carry for just such an emergency. Finally I got him out and we tried circumnavigating the area. It took quite a bit more cutting, standing in mud to our waists with leeches chewing on various tender parts of our anatomy. Again we came to quick mud, and this time I was almost inundated. Sgt. Brenner saved me in much the same manner that I had saved him . . .

"The original plan did not now seem feasible, so we made our way back to camp. The third day we set out with a new plan conceived by the L-5 pilot and ourselves. We would follow a series of streams that would be a long, roundabout course, but would eventually lead us to a semi-trail which came close to the chute. The day before, we had been within a half-mile of the chute and couldn't get to it.

Stream Had Sandy Bottom

"This day we started out following the stream we had camped on northeast to a pair of forks, a distance of about two miles. The walking was easy, as this stream had a solid, sandy bottom. We arrived at the forks and started up a side stream southeast. This stream had a muddy bottom and we sank up to our knees and walking was very tiresome. After about a mile of this we began to hit deep pools. We could not go around them, as the walls of the stream were vertical and solid jungle growth. We could go no farther. Our heavy packs prevented us from swimming.

"We called the L-5 and asked for our rubber life raft. To build a raft was impossible, for there was no bamboo of large enough diameter with which to work. Late that afternoon, while we waited in the water fighting off leeches that dropped on us from the overhanging brush, our C-47 arrived and dropped the raft. We immediately inflated it and began to make our way, paddling, upstream again. We were immediately confronted with a series of leaks whose repair consumed much time.

"It was long past dusk when we finally camped in a field of elephant grass that night. It had rained most of the day and we had been in the river all day and were soaked through, but due to the constant rain and the absence of any firewood we were unable to build a fire. We ate some crackers, curled up in our blankets, which were now wet, and tried to sleep. The field was well stocked with rats that continually walked over our exposed hands and faces, waking us up, throughout the night. The tigers were numerous and loud. One of them investigated us and Sgt. Brenner almost got him with his .45. The tiger was not five feet from where we lay, but it was difficult to shoot at night, especially when newly awakened.

"The next day we continued our journey. It was difficult going, as many large trees had fallen over the stream, as well as brush. We would empty the boat, and lift it over the trees, reload it and move on. We would cut a tunnel through the brush to allow the boat to pass. There were also many spots where mud bars prevented the boat from floating, and here we would climb out, standing to our knees in the gooey stuff, and drag the boat. Some of these bars were as long as 200 ft. The going was extremely slow.

"Finally, though, we arrived at a fallen bridge on an overgrown trail. This was a welcome relief and we followed the trail to a clearing. There we laid out my red blanket, our call letters as it were. The L-5 spotted it, flew from it to the missing man's parachute, now only 100 yards away, and there it wiggled its wings. The Sergeant and I again started cutting, staying always under the course of the plane. In an hour we saw the chute in a tall tree and made our way to it."

But, after spending five days to cover the two miles, they found that the boy was dead. "We were told to bury the body," Diebold says. "This we did, covering the grave with white jungle flowers and firing a three-gun salute. On our knees, with the flies swarming about us and the ants thinking we were more to eat, we said a few prayers—among which we included one that, somehow, this needless waste of boyhood would cease."

Such is the work of the Air Transport Command's Search and Rescue Unit—the little-known story of an outfit that has turned the airplane to the saving of human lives.

Most Aircraft Service Operators Engaged In Charter Services, Survey Discloses

PRACTICALLY all aircraft service operators are engaged in charter services, a spot survey conducted by *American Aviation* reveals. Although there is as great a variation between the rates charged as there is between the plane models used, operators, with few exceptions, appear eager to give charter services. The few not actively soliciting charters engage in the service as a favor to local business men.

A surprising fact disclosed by the survey was that although 25 percent of those questioned had applied to the Civil Aeronautics Board for an inter-state airline route, only five percent indicated interest in obtaining intra-state routes.

The majority of aircraft service operators need almost no notice for arranging a charter flight. Although one operator requires 12 hours warning, in general no advance notice or, at the most, one hour's notice is all that is needed to charter a plane. In many cases this plane will be available to take passengers anywhere in the United States. However, some operators have limited themselves to a radius of 500 to 800 miles or to adjacent states. While many are equipped to furnish daytime instrument flights, about 70 percent cannot accept charters for night flying.

Most commonly used planes in charter service today appear to be Stinsons, Taylorcrafts and Piper Cruisers, but nearly 20 models were named by operators surveyed, varying from single-place to six-place aircraft. Others include: Aeronca TAC and Super Chief, Beechcraft, Culver LFA, Fairchild 24, Fokker, Luscombe "Silvaire", Piper Club, Stinson Voyager and Reliant, Timm, and Waco.

Charges, in general, are based on mileage with some operators using an hourly measure and a few making special rates for chartering planes by the day. There is apparently little uniformity in rates. For example, to charter a two-place contact plane when charges are based on mileage may cost 10, 11, 15, 20, 22, or 30 cents. The same plane rented from an operator who charges by the hour may cost anything from $6.60 to $14. Most operators charge 30 cents a mile for a four-place instrument plane but again prices vary, ranging from 18 to 50 cents. Layover costs for the two-place plane are about $10 or $15 a day although here also there is considerable difference with a range from $5 to $20. Charges for layover for a four-place plane are about $20 to $25.

At the S & M Flying Service, Dallesport, Wash. the layover charge depends on total flight time. Overnight layovers cost only the expenses involved if the plane has been used a minimum of three hours flying time.

Duff Heads Continental's Traffic, Sales Department

Continental Air Lines announces the appointment of Donald A. Duff to the position of executive assistant in charge of traffic and sales. He succeeds Paul J. Carmichael who has resigned as general traffic and cargo manager to expand his operations in the ranching business.

Announced at the same time was the appointment of Joseph Andrew Uhl as assistant to Robert F. Six, Continental president, effective June 1. Uhl joins Continental from the Pueblo (Colo.) Savings and Trust Co., which he has headed as president since 1933. He will be assigned to the Continental-Denver modification center as contract coordinator and liaison between the airline and the modification center.

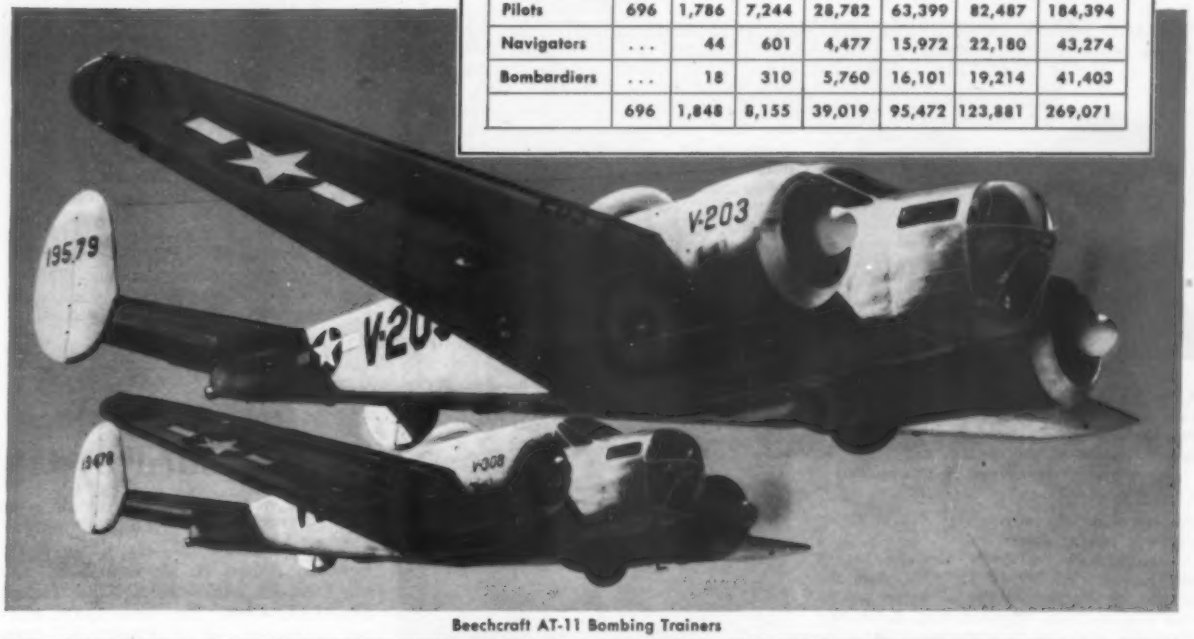
Prior to his new assignment, Duff served for two years as executive assistant for Continental, handling special public relations assignments as well as municipal, state and governmental relations. Duff joined Continental from Northeast Airlines, where he served as general traffic and sales manager.

"Payoff"

Output of AAF Training Command Courses*

(Successfully Completed)

							Total
	1939	1940	1941	1942	1943	1944	1939-44
Pilots	696	1,786	7,244	28,782	63,399	82,487	184,394
Navigators	. . .	44	601	4,477	15,972	22,180	43,274
Bombardiers	. . .	18	310	5,760	16,101	19,214	41,403
	696	1,848	8,155	39,019	95,472	123,881	269,071



Beechcraft AT-11 Bombing Trainers

* "Here is the classroom of the navigation cadet, a silver twin-engine Beechcraft AT-7. These powerful trainers carry a team of five. They cruise for hundreds of miles on practice navigation flights from AAF Navigation School, Hondo, Tex., world's largest navigation school." (*Official AAF releases)

Mass production of the world's most highly skilled aircrews and technicians has been the job of the Army Air Forces Training Command for six years. How well that job was done is summarized in the table above. *The "Payoff" is told in the daily news of victories won by our fighting men on all fronts* . . . victories made possible through our supremacy in the air.

Almost all of the Army Air Forces navigators and bombardiers, and a large portion of multi-engine pilots, received their advanced training in twin-engine Beechcrafts. The outstanding service record made by thousands of these Beechcrafts in the gruelling routine of fast-paced training operations is a forecast of the freedom from trouble and expense which owners of postwar commercial Beechcrafts may rightfully expect. Meanwhile, all facilities of Beech Aircraft continue 100% on production of Beechcrafts and A-26 Invader wings for the armed forces until the realization of complete Victory.

Beech Aircraft
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BEECHCRAFTS ARE DOING THEIR PART — WICHITA, KANSAS, U. S. A.

New Air Services:

C. & S. Opens Border-to-Border; Northwest Enters New York City

CHICAGO AND SOUTHERN Air Lines was ready to inaugurate service from Detroit to Houston and New Orleans as

R. L. Anderson (left) and Bruce E. Braun have established for Chicago and Southern its enviable safety record. Anderson is superintendent of engineering, and Braun is vice president in charge of operations.

this issue went to press. The opening date was set at June 1.

Chicago and Southern already serves both Houston and New Orleans, and the shortest distance to both of these points from Detroit and Indiana and Kentucky points lies directly through Memphis over the already-established lines of the company to Little Rock, Ark.; Shreveport, La.; and Greenwood and Jackson, Miss. El Dorado, Ark., it is expected, will be added soon.

The new route will connect many of the most vital industrial plants in the middle west and southern states. Beyond this, the operation of through service by Chicago and Southern will also unify its system from border to border with outlets at Detroit on the north to Toronto and Montreal, and on the south at Houston and New Orleans to Latin America.

NORTHWEST AIRLINES was scheduled to begin operations into New York June 1, the airline's routes having been extended east via Milwaukee and Detroit last December by CAB. The Board held up final approval, however, until the Army could study the needs of national defense.

Several survey flights have been completed by NWA preliminary to the beginning of operations. Purpose of these trips was to check radio problems, weather and meteorological conditions, and to study landing and takeoff procedures, holding points, and holding procedures.

Opening of this service makes Northwest a transcontinental air trunk line, the fourth in the nation, and the only one serving the northern tier of states. It brings to a successful conclusion NWA's six-year fight to get into New York. The

Technical problems on Northwest's survey flights were studied by James McClellan, left, and Claire E. Blaine, right, assistant flight superintendents, and Ware Cummins, chief flight superintendent for the eastern flight control area, New York.

route, from Seattle-Tacoma-Portland on the Pacific Coast, through the Twin Cities, Milwaukee, and Detroit to the Atlantic seaboard, is the shortest across the United States.

Continental Adds Flights

Continental Air Lines began using 21-passenger equipment on its Denver-San Antonio route instead of 14-passenger planes on June 1. A new schedule adds a third round-trip daily between Denver and Kansas City and Denver and Albuquerque and a second round-trip between Denver and San Antonio. One of the Denver-Kansas City flights will operate via Hutchinson, Kansas. Continental planes will also provide service from Colorado Springs and Pueblo to Kansas City. There will be an additional flight between El Paso and San Antonio, bringing the total to three daily.

Seattle-Alaska Flights Added

In anticipation of accelerated traffic between Seattle and Alaska this summer, Pan American Airways will operate 14 round trips weekly. Space for at least 700 additional passengers each month will be made available by the increased service.

Mexico City-to-Panama City

TACA Airways is flying five round trips weekly between Mexico City and Panama City. Flights leave Mexico City every morning Monday through Friday, arriving in Panama the same evening. Flights leave Panama five days a week arriving in Mexico City the same afternoon.

BOAC Summer Schedule

British Overseas Airways has begun a summer schedule of four flights weekly between England and the U. S. using 40-ton flying boats which BOAC describes as the largest transports in commercial service in the world. The American terminus is at Baltimore, with a refueling stop at Newfoundland. BOAC states that it will soon add a 58-ton 70-passenger air cruiser, a modified version of the Short Shetland, to its service.

Sweden-to-England

A. B. Aerotransport (Swedish Air Lines) has resumed daily service between Stockholm and Prestwick. As a result of the end of the European war the service has been changed from a courier basis to a commercial status. The flights leave Stockholm at 9 a. m. and depart from Prestwick at 4 p. m. The fare has been reduced from 700 to 500 crowns. Converted B-17s are used.

TACA de Colombia's First

First flight by the newly formed South American airline, TACA de Colombia, was made last month between Bogota and Barranquilla. Scheduled services will begin after survey flights in other parts of the country have been completed. TACA de Colombia has applied to Washington for international flights to New Orleans and Miami.

NWA Shows Off Route

Northwest Airlines was host to a party of 16 newspapermen and aviation writers May 18 on a survey flight over its new 2,566-mile air route between New York and Seattle, over which Northwest was scheduled to begin operations June 1.

Croil Hunter, NWA president, who made the trip, announced in Seattle that his company planned to purchase the Boeing Stratocruiser for its transcontinental service. Deliveries are expected in the third quarter of 1946, Boeing Aircraft officials said.

The press party inspected both the Boeing C-97, and mock-ups of the Stratocruiser. Boeing officials said the 77-passenger plane could make the Seattle-New York flight non-stop in eight hours.

Continental's '29' Extended by CAB

The Civil Aeronautics Board in a supplemental decision released May 18 awarded Continental Air Lines a route between Hobbs, N. M., and Tulsa, Okla., via Lubbock and Wichita Falls, Tex., and Oklahoma City. The new route will be an extension of Continentals' present Route 29, on which Hobbs is an intermediate point.

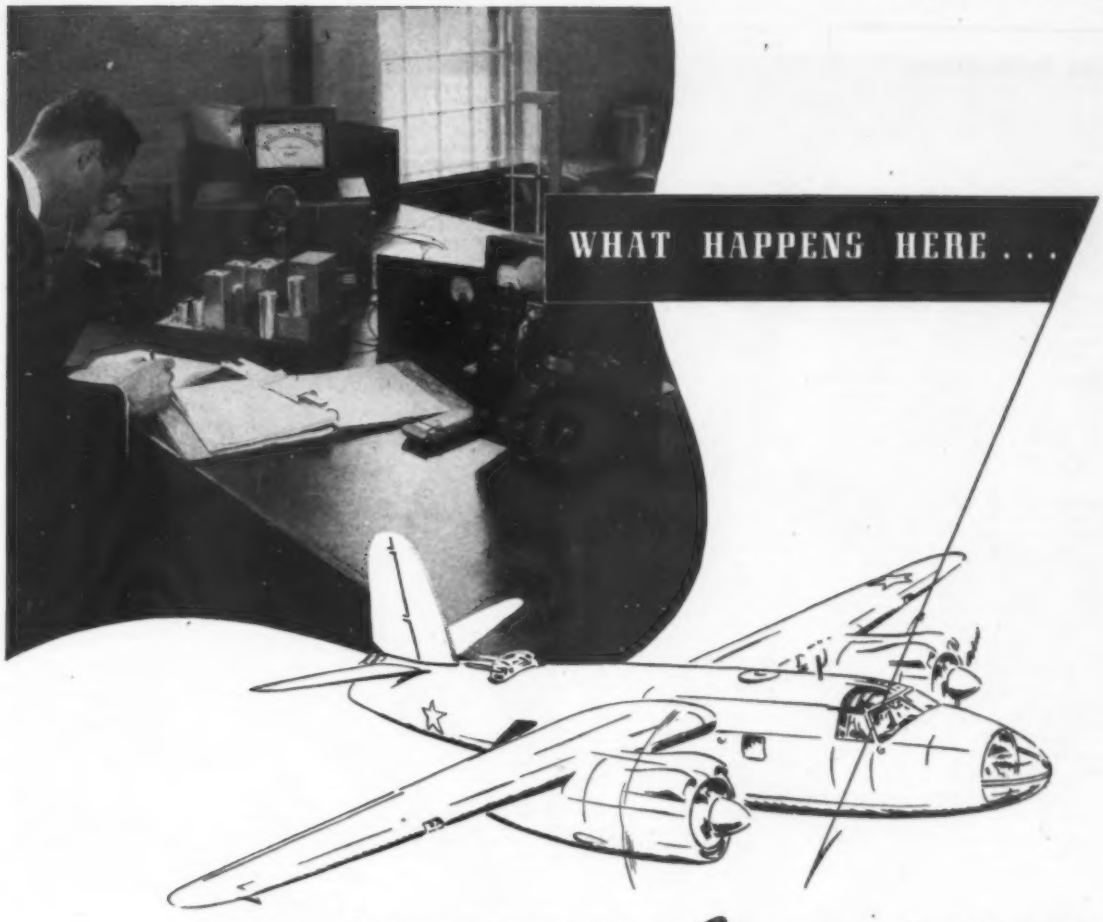
The decision came as the result of a reopened proceeding specifically with respect to air service to Wichita Falls and Lubbock, which had originally been heard and decided as a part of the Memphis-Oklahoma City-El Paso case (Docket 503 et al). In that proceeding, Continental's application was denied.

Both Continental and American were parties to the reopened proceeding. The Board dismissed American's application on the grounds that Continental as a smaller carrier was more dependent upon traffic from cities the size of Lubbock and Wichita Falls and would therefore give more intensive development to traffic development from those points.

Chairman L. Welch Pogue and Member Josh Lee concurred in the decision. Although Vice Chairman Edward Warner and Members Harllee Branch and Oswald Ryan agreed, they filed separate opinions.

Warner held that while he concurred with the Board in the need for a route between Wichita Falls and El Paso and Wichita Falls and Oklahoma City, he was of the opinion that Wichita Falls' need was for connections with the cities of eastern Texas and with Oklahoma City and Tulsa, and that this could best be accomplished by placing Wichita Falls on one of the two routes now operating between Chicago and Dallas-Ft. Worth, via Oklahoma City.

Branch and Ryan held that while they agreed with the need for service between Wichita Falls and Lubbock, and service between these points and Oklahoma City-Tulsa and El Paso, they remained of the opinion that the service could best be performed by American Airlines.



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Route Applications

Aero-Transportes, S. A., Mexico, D. F.—asks for temporary foreign permit authorizing service to Brownsville, Tex. for a period of one year. (Docket 1885).

American Airlines—asks for an order temporarily exempting it from the provisions of Section 401 (a) of the Act to permit the carriage of persons, property and mail to and from Big Spring, Tex. on transcontinental flights via Nashville, Tulsa and Oklahoma City, and El Paso. (Docket 1882).

Braniff Airways—asks permanent certificate between Memphis and Dallas, Tex., or the alternate of a permanent amendment on Route 15 to provide for service between Little Rock, Ark., and Dallas, Tex. (Docket 1861).

Chicago & Southern Air Lines—asks for amendment of Routes 8 and 53 so as to consolidate these routes into one route to be designated as Route 53, and to authorize extension of such route from Little Rock to Dallas and Ft. Worth, or from Shreveport to Dallas and Ft. Worth, via Longview, Tex. (Docket 1891).

Colonial Airlines—proposes an equal number of new routes. The applications ask:

Route between Boston and/or Bedford, Mass., and New Orleans, via Providence, Hartford, New York, Philadelphia, Baltimore, Washington and southward via these alternate routings: (a) Roanoke, Winston-Salem, Greensboro, Asheville, Atlanta, Montgomery, Mobile and Gulfport, Miss., or (b) Lynchburg, Va., Briston and Johnson City, Tenn., Knoxville, Chattanooga and Birmingham. (Docket 1857).

Route between Buffalo and Atlantic City, N. J., via Rochester, Binghamton and New York City. (Docket 1858).

Route between New York and/or Newark, N. J., and Baltimore via Reading, Pa., and Lancaster, Pa., with authority to operate non-stop between New York and/or Newark and Washington, D. C., and skip-stop between New York and/or Newark and Washington, no more than two intermediate points being served. (Docket 1859).

Compania Naciona; Cubana de Aviacion, S. A.—filed for a foreign permit to carry persons, property and mail between Havana and Miami. (Docket 1887).

Delta Air Corp.—asks an amendment to Route 24 to provide for service between Shreveport and Baton Rouge, via Monroe, La. (Docket 1860).

Ellis Air Transport and Alaska Coastal Airlines—ask for the revocation of the order granting temporary exemption to Pan American Airways, Inc. so as to authorize air transportation of persons, property and mail between Ketchikan, Alaska and Juneau, Alaska. (Docket 1884).

Inter-Americas Airlines, P. O. Box 2988, San Juan, Puerto Rico—asks that that portion of the certificate of Caribbean-Atlantic Airlines calling for service between Mayaguez-San Juan-Ponce be revoked on the grounds that Caribbean-Atlantic is not fit, willing or able to perform this intra-island service.

Applicant stated that Caribbean-Atlantic had never operated the Mayaguez-San Juan-Ponce service, and had never applied to the CAB for an order exempting them from providing the service. Suitable aircraft has been available, the petition states, but Caribbean-Atlantic "failed and neglected for two years and seven months to provide this much needed intra-island service."

At same time, Inter-Americas filed an application for three routes in Puerto Rico: Route 1—San Juan to Mayaguez, via Arecido; Route 2—San Juan to Ponce, and Route 3—San Juan to Vieques. (Docket 1862).

Inter-American Airlines—asks the CAB to revoke the certificate of Caribbean-Atlantic Airlines, Inc., for the route between San Juan, Mayaguez and Ponce because of the company's failure to operate the route. (Docket 1863).

Lineas Aereas Mexicanas, S. A. (LAMSA)—asks that its temporary foreign air carrier permit providing for use of the airport at Nogales, Ariz., be made permanent. The temporary permit will expire May 5. LAMSA is using the Arizona airport to provide service on its route between Cananea, Chilhuahua, and Nogales, Sonora, Mexico. (Docket 1854).

Mid-Continent Airlines—asks for extension of Route 26 from Shreveport, La. to Houston, Tex., via the intermediate points Beaumont-Port Arthur, Tex. (Docket 1888).

Northeast Airlines—requests exemption of CAR 239.1 to the extent necessary to permit the company to dispatch special services, passengers, mail and express to and from Boston alternates when Boston is closed on account of weather. (Docket 1864) Application denied in Order 3655. Northeast also asks for determination of the fair and reasonable rates for mail on Route 45. (Docket 1890).

Pan American Airways—asks for exemption order authorizing the discontinuance of service to and from Hot Springs, Kokrines, Ruby, Koyukuk, Nulato and Golovin, Alaska. (Docket 1883).

Transcontinental & Western Air—asks service to Denver. One application calls for an amendment to TWA's certificate on Route 44, extending that route westward from the present terminal, Kansas City, to Los Angeles, via two routings: (a) Denver, and (b) Denver and Phoenix, Ariz. (Docket 1840).

Second application proposes an amendment to TWA's Route 2, making Denver (a) as an intermediate point on an alternate course between St. Louis and Los Angeles and (b) as an intermediate point on an alternate course between St. Louis and Phoenix. (Docket 1841).

United Air Lines—Amendment No. 1 to application in Docket 1881 so as to request amendment of its certificate for Route 1 so as to include Bradford, Williamsport, Scranton-Wilkes-Barre, Johnstown and Harrisburg, Pa. as intermediate points. (Docket 1881).

John P. Carey, 16 E. 96th St., New York, N. Y.—asks for a certificate for scheduled operations to transport persons, property and mail between La Guardia Field, Idlewild Airport, Newark Airport and Bendix Field with either conventional or rotary wing aircraft. (Docket 1837).

Second application asks authority for the non-scheduled transportation of persons, property and mail over an irregular route between airports within a radius of 75 miles from La Guardia Field. Either conventional or rotary wing aircraft would be used. (Docket 1838).

Carey presently engaged in the surface transportation of airline passengers between La Guardia Field and the Airlines Terminal Building, 90 E. 42nd St., New York.

Northern Airways, 203 Lacey St., Fairbanks, Alaska—asks for a series of four loop routes out of Fairbanks for the transportation of property and mail, via some 100 intermediate points. The application also proposes persons, property and mail service between Fairbanks and Barrow, via Bettles, and between Fairbanks and Hogotza, and includes a request for service to all points in the Territory over irregular routes. (Docket 1835).

Second application asks a certificate for persons, property and mail service between Fairbanks and Whitehorse, Canada, via Tanacross and Northway. (Docket 1836).

Otto Aviation Corp., Union Building, Newark, N. J.—asks for approval of control of its air carrier operations as outlined in Docket 1096. The latter application seeks route authorizations primarily in New Jersey for the transportation of persons, property and mail, in addition to a mail-property pickup system over a feeder line system running from Newark to Buffalo via some 65 intermediate points. (Docket 1839).

Robinson Aviation, 730 Fifth Ave., New York 19, N. Y.—asks for air transportation of persons, property and mail between Ithaca and Albany, Ithaca and Rochester, and Ithaca and Washington, D. C. (Docket 1886).

Rockland Coaches, 122 Central Ave., Spring Valley, N. Y.—filed for five routes and four alternate routes for transportation of persons, property, and mail between downtown New York and points as far north as Albany and as far west as Wilkes-Barre, Pa. The applicant proposes to use helicopters. Four motor coach companies are affiliated with Rockland Coaches, Inc. (Docket 1865).

CAB Calendar

June 7—Argument, American Airlines & Walter S. McLucas, Board Room 10 a. m. (Docket 1504 et al)

Aug. 10—Hearing, additional Cincinnati-New York service (Docket 221 et al) (Tentative).

Sept. 3—Hearing in the Great Lakes case, involving service in Michigan, Ohio, Indiana, Illinois and Wisconsin (Docket 535 et al) (Tentative).

Oct. 1—Hearing, Mississippi Valley case (Docket 548 et al) (Tentative).

Recent CAB Orders

3605—Approving loan by the Reconstruction Finance Corp. to George S. Schwamm doing business as Petersburg Air Service, Petersburg, Alaska.

3607—Denying the inauguration of service between Minneapolis-St. Paul, Minn., and New York by Northwest Airlines, Inc. (Docket 629 et al).

3610—Authorizing Northeast Airlines, Inc., to inaugurate service to New York.

3611—Denying the petition of State Airlines, Inc. (Dockets 673 and 1206) in the Great Lakes to Florida case (Docket 570 et al).

3612—Extending to Royal Dutch Airlines a temporary permit for three months from April 30, 1945, on a route between Miami and Curacao.

3613—Authorizing American Airlines, Inc., to inaugurate service to Peoria, Ill.

3614—Authorizing Chicago & Southern Air Lines, Inc. to inaugurate service to Peoria, Ill.

3615—Supplementing 2574 of Nov. 5, 1943 in the applications of Continental Airlines, Inc., Braniff Airways, Inc., Essair, Inc. and Transcontinental & Western Air., Inc. (Docket 2-401-B-2, et al).

3619—Dismissing application of Transcontinental & Western Air., Inc. (Docket 1123).

3620—Authorizing Pan American-Grace Airways, Inc. to operate between the terminal point Cristobal, Canal Zone, and Buenos Aires, Argentine, and intermediate points. (Docket 1403).

3621—Dismissing the proceeding of M. F. Redfern on behalf of The Universal Air Travel Plan and Government Travel Discount Provisions of certain air carriers (Docket 1810).

3622—Extending temporary permit to Expreso Aereo Inter-Americana, S. A. three months from April 30, 1945 (Docket 778 et al)

3623—Authorizing Northwest Airlines, Inc. to inaugurate service to New York and Detroit.

3624—Notifying Transcontinental & Western Air, Inc. that inauguration of service between Pittsburgh and Boston be delayed (Docket 13-401-B-1 et al).

3625—Authorizing Transcontinental & Western Air to inaugurate non-stop service between Pittsburgh and Boston, between Pittsburgh and Albany on Route 67.

3626—Authorizing Transcontinental & Western Air, Inc. to inaugurate service to Williamsport, Pa., Albany, N. Y. and Boston.

3627—Rescinding Eastern Air Lines, Inc. Service suspension order on Routes 40 and 47.

3628—Amending form of report of financial and operating statistics for Internation Air Carriers.

3629—Amending the uniform system of accounts for Internation Air Carriers.

3630—Dismissing the application of Hawthorne Airways (Docket 1243) in the Southeastern States Case (Docket 501 et al).

3631—Consolidating applications in the Great Lakes Area Case (Docket 535 et al).

3632—Authorizing United Air Lines, Inc. to suspend service temporarily on Route 17.

3633—Authorizing the inaugurating of service by United Air Lines, Inc. between Cleveland and Boston. (Docket 13-401-B-1 et al).

3634—Authorizing Pennsylvania-Central Airlines Corp. to inaugurate service from New York and Newark, N. J. (Docket 629 et al).

3635—Permitting National Airlines, Inc., to withdraw its application for non-stop service between Jacksonville and Miami. (Docket 1709).

3636—Rescinding temporary suspension of service by Northern Cross, Inc. (Docket 923).

3637—Amending form of report of financial and operating statistics for domestic air carriers.

3638—Amending uniform system of accounts for domestic air carriers.

3641—Authorizing United Air Lines, Inc. to inaugurate service to Hartford, Conn. and Boston, Mass.

3642—Authorizing British Overseas Airways Corp. to increase the frequencies between Baltimore, Md. and Foynes, Eire.

3653—Approving agreement of United Air Lines, Inc. and National Airlines, Inc. relating to sublease of ticket counter space at Washington National Airport.

3654—Approving agreement of United Air Lines, Inc. and National Airlines, Inc. relating to sublease of office space in the Airlines Terminal Building, New York.

3655—Denying the application of Northeast Airlines, Inc., for exemption on Route 27 (Docket 1864).

3656—Approving the agreement between Pennsylvania-Central Air Lines Corp. and Northwest Airlines, Inc. on joint occupancy of radio transmitter at Oak Creek, Wisc.

3657—Approving agreement between Northeast Airlines, Inc. and Maritime Central Airways, Inc. relating to interline ticketing arrangements.

3658—Permitting city of Sioux Falls, S. D. to intervene in the North Central Case (Docket 415 et al).

3659—Dismissing the applications of W. A. Hunter, Jr. (Docket 1339), Consolidated Bus Lines (Docket 1020), Logan Williamson Bus Co. (Docket 960)

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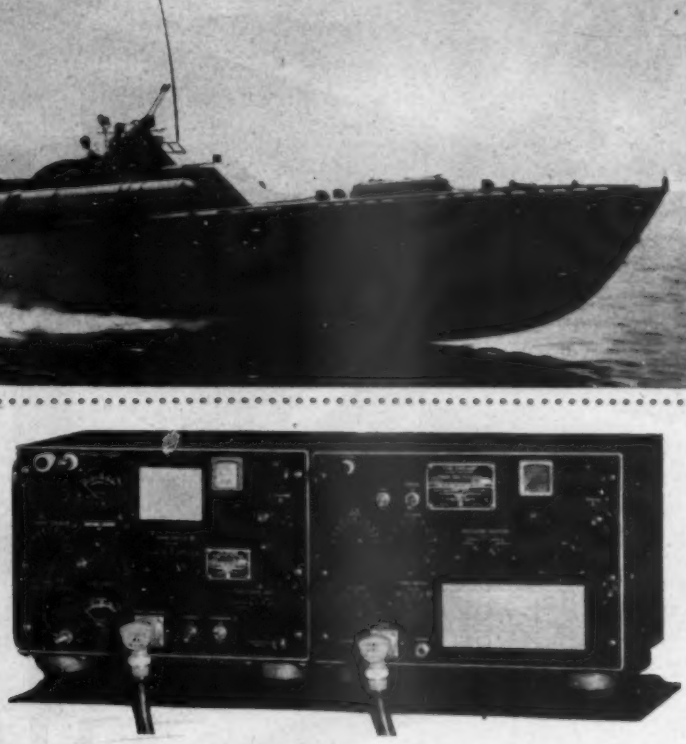

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LVT-4 LANDING VEHICLE TRACK*

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ARMY E NAVY

IN RADIO COMMUNICATIONS, IT'S . . .

COLLINS

and Lovett & Hutcheson (Docket 1639) in the Southeastern States Case (Docket 501 et al).

3660—Approving the agreement between American Airlines, Inc. and Eastern Air Lines, Inc. relating to sub-lease of transmitter site at Louisville, Ky.

3661—Approving agreement between Wien Alaska Airlines, Inc. and Pan American Airways, Inc. relating to charter of aircraft by Wien to Pan American.

3662—Approving interlocking relationships of Transcontinental & Western Air Inc. and Charles W. Perelle (Docket 1739).

3663—Approving interlocking relationships of Transcontinental & Western Air, Inc. and Jack Frye (Docket 1726).

3672—Permitting cities of Charleston, Norfolk, Louisville, Anderson, Cincinnati, Campbell Co., Ky., Greensboro-High Point, Owensboro, Ky., Pan Atlantic Steamship Corp., Cities of Brunswick, Ga., Tupelo, Miss., South Carolina Aeronautics Commission, Cities of Tifton, Ga., Asheville, N. C., Albany, Ga. and Memphis, Tenn., to intervene in the Southeastern States case (Docket 501 et al).

3673—Consolidating the application of Southeastern Air Express, Inc. (Docket 1751) in the Southeastern States Case (Docket 501 et al).

3674—Rescinding partially service suspension order of Pennsylvania Central Airlines Corp. between Baltimore and Buffalo on Route 34.

3675—Approving agreement between American Airlines, Inc. and Pennsylvania-Central Airlines, Inc. relating to sublease of hangar space by American to PCA at Chicago.

3676—Dismissing the application of Kansas Aviation Co. (Docket 1292).

3677—Authorizing the inauguration of service by Caribbean-Atlantic Airlines, Inc., to Mayaguez, Puerto Rico, and Ponce, Puerto Rico.

3678—Approving interlocking relationships between Ralph Budd and seventeen companies (Docket 1855).

3679—Dismissing applications of United Air Lines, Inc. (Dockets 1216 and 1226).

3680—Approving of cancellation of agreement between Northwest Airlines, Inc., Transcontinental & Western Air., Inc. and Chicago & Southern Air Lines, Inc. relating to guard service at Chicago Municipal Airport.

CAA Technician's Death Halts Planning For New Airport Lighting System

THE recent death of Arthur J. Sweet of the CAA's Technical Development Division brought the disclosure that he was in the process of completing an airport lighting system which would make possible landings when visibility is as low as 230 feet.

The present visibility standard is one mile.

Sweet envisioned the system for international use, and designed spacings and patterns to be readily expressible in metric as well as English measurements.

He took advantage of every opportunity to bring the system to the attention of Canadian and British technicians, and was anxious that the system be studied and adopted by the international committees now studying and establishing aviation standards on a world-wide basis.

A scale model of the system has been used to demonstrate its principles to a number of officials of the CAA, Army and Navy, airline and Canadian and British officers.

Designed for use at terminal airports in combination with a radio guide to the approach path, Sweet's system, it is claimed, will make possible landings 80 seconds apart in bad weather.

Pending actual service tests, the CAA regards the system as a promising experiment, but is not yet recommending its general installation.

The Sweet system includes the following features:

Uni-directional lights, visible only from the approach position, in order to avoid illuminating a fog background;

Auxiliary runway lights midway between present ones, for use in fog;

A new type of approach lights, placed in pairs inclined inward at a 45-degree angle;

A 660-foot paved portal before the runway proper, marked with red lights and usable on takeoffs;

Landing at a point further down the runway than at present, in order to benefit by the runway lighting.

CAA said that the system recognizes the severe limitation on the distance a light can be seen in a fog, and provides sufficient recognizable pattern in that short distance that the pilot has adequate information and guidance for the critical part of the landing.

Aircraft Radio Equipment Type Certificated for Scheduled Air Carrier Use

January

No.	Manufacturer	Unit	Date
545	Transcontinental and Western Air, Inc.	A-427 Radio Control Unit	1- 2-45
995	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-34A Jack Box	1-17-45
996	Bendix Radio, Division of Bendix Aviation Corporation	Type MN-20E Rotatable Loop Unit	1-18-45

February

801	Bendix Radio Division of Bendix Aviation Corporation	Type MT-83B Antenna Tuning Unit	2- 2-45
872	Bendix Radio, Division of Bendix Aviation Corporation	Type RA-2C Aircraft Receiver	2- 2-45
943	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-90A Control Unit	2-27-45
946	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-90B Control Unit	2-28-45
997	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-44C Remote Control	2- 7-45
998	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-44D Remote Control	2- 7-45
1015	Radio Specialty Mfg. Company	1058-1-1 Quartz Control Unit	2-24-45

March

944	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-91A Control Unit	3- 2-45
947	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-91B Control Unit	3- 2-45
968	Bendix Radio, Division of Bendix Aviation Corporation	Type 1N-4D Left-Right Indicator	3-23-45
1000	Bendix Radio, Division of Bendix Aviation Corporation	Type MS-44E Remote Control	3- 8-45
1017	Radio Specialty Manufacturing Co.	1058-1-2 Quartz Control Unit	3- 1-45

April

532	Northwest Airlines, Inc.	Type A-13948 Market Indicator	4-30-45
533	Northwest Airlines, Inc.	Type A14204 Jack Box	4-27-45
534	Northwest Airlines, Inc.	Type A14204-1 Jack Box	4-27-45
535	Northwest Airlines, Inc.	Type A14210 Control	4-27-45
966	Bendix Radio	Type MN-26-F Radio Compass	4- 6-45
973	Bendix Radio	Type RA-2D Aircraft Receiver	4- 5-45
992	Bendix Radio	Type MN-53A Marker Receiver	4-21-45
1001	Bendix Radio	Type MR-27CA Loop Relay Unit	4-30-45

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Brinkley Murphy

Walter Pearce Pears

Oliver Mardell

Executive

Col. Laigh C. Parker, former vice president and director of Delta Air Lines, has been designated Chief of Staff, European Division, of the Air Transport Command.

Alexander Smith, former secretary of Hawaiian Airlines, Ltd., has been made vice president and secretary. **Ford Studebaker** was named vice president in charge of operations and development, **David Watson** became treasurer, and **Raymond Laclergue,** formerly assistant accountant, succeeded him as assistant treasurer. **Robert T. Williams,** president of the Williams Equipment Co., was elected to the board of directors.

Sigmund Janas has been re-elected president of Colonial Airlines.

Alonzo Petteys, vice president and director of the Farmers' State Bank of Brush, Colo., has been elected to the board of directors of Northwest Airlines.

Thomas Fortune Ryan, III, of San Francisco, has been elected to the board of directors of Mid-Continent Airlines. The rest of the board remains the same.

Operations

Kay Anderson, former hostess with Mid-Continent Airlines, has been appointed chief hostess of Alaska Airlines.

Leigh R. Murphy, veteran airline pilot, has been appointed supervisor of operations for PCA LaGuardia Field.

Col. R. W. Pears, recently of the U. S. Army Air Forces, has been named chief pilot of Aerovias Braniff, S. A. Col. Pears formerly was chief pilot for Braniff Airways.

Traffic

Ross Ferrier, Jr. is in charge of the new city ticket office of Delta Air Lines in Ft. Worth, Tex. In charge of other new offices are **Mrs. Beverly Raggio,** agent, Alexandria, La.; **Miss Virginia Nelson,** Columbia, S. C., chief agent; and **Miss Frances Young,** Columbus, Ga. **Manley E. Beard,** former DTM at Shreveport, La. has been appointed to the new district in New Orleans.

Murray T. Jackson, former City Traffic manager for National Airlines in Miami, has been appointed assistant DTM there.

Walter Pearce has been appointed station manager for National Airlines at Sarasota-Bradenton, Fla. **Don Stremmel,** whom he succeeds, has been assigned to the cargo department at Miami.

Donald W. Doherty, formerly superintendent of sales for the Diamond Match Co., has been appointed traffic representative in the Minneapolis office of Mid-Continent Airlines.

Bond Pledges Enroute

Pledges for approximately a quarter million dollars worth of Seventh War Loan bonds were signed by passengers of American Airlines while flying over all parts of the United States at the moment V-E day was proclaimed, according to Richard H. Holman, local traffic manager in Baltimore. The pledges averaged $5,000 per plane.

The V-E day news was radioed to the planes while in flight and was passed on to passengers by the stewardesses in the form of a flight progress report signed by the plane's officers and containing spaces for filling in the name of the passenger and altitude, position, time and direction of travel at the time the news was received. The other side of the folder was in the form of a pledge for purchasing war bonds. The pledges were signed in triplicate, one copy going to the passenger, one to the Treasury Department, and the third to General MacArthur and Admiral Nimitz as a manifestation of home front support for the fight to beat the Japs.

Robert P. Brinkley, assistant to the general traffic manager of PCA, has been awarded a 10-year service pin by the company.

William D. Ord, former supervisor of reservations and ticketing for PCA, has been named regional ground operations supervisor for the Eastern region and will be based in Washington, D. C.

Helen Borg is the first woman to be appointed a city traffic manager by National Airlines. She is in Miami.

Kenneth B. Loeffler, station manager in Waco for Braniff Airways, has been appointed station manager at Tulsa, Okla.

Lorin Randall, former chief agent at St. Louis, has been appointed supervisor of passenger and cargo service at Washington, D. C., American Airlines, announces.

Donald Oliver, Oscar Mardell and **Morris Bakken** are new traffic representatives for Northwest Airlines at Detroit.

Miscellaneous

Edgar D. Hensley succeeds **William C. Thacher** as district sales manager in the Los Angeles office of Pan American Airways. Thacher returns to PAA's New York office.

Miss Margaret Kalhorn, formerly of Kansas City, has been named staff assistant to Otis Bryan, vice president of Transcontinental & Western Air, in Washington.

Harry Van der Gaast has been appointed assistant general purchasing agent for the TACA Airways System in New York. Previously he was purchasing agent for American Airlines.

Edward T. Bolton, formerly chief navigator of the Intercontinental Division of TWA, has been appointed assistant to Otis Bryan, TWA vice president, in Washington. Bolton succeeds **Charles E. Kaul,** who has been transferred to Kansas City. **Harold D. Koontz,** analyst, was named to the newly created post of coordinator of planning. **William R. Pearce,** personnel supervisor for the Intercontinent Division, returns to the domestic division in Kansas City in the employe relations department. He will be replaced in Washington by **Donald M. Laughlin.**

HOW DO WE DO A "SLIP" IN THE CUB, TOM?
IT'S EASY, MARY! I'LL SHOW YOU HOW USEFUL IT CAN BE!
A "SLIP" LETS US LOSE ALTITUDE QUICKLY, WITHOUT GAINING SPEED—SO WE CAN LAND IN A SMALL SPACE.
TO LAND IN THIS SHORT FIELD, OVER THE TREES, WE'LL DO A FORWARD "SLIP"—THE MOST COMMON TYPE.

HERE'S HOW A FORWARD "SLIP" LOOKS FROM THE GROUND
GLIDE— WITH THROTTLE BACK.
THE "SLIP"— CROSS THE CONTROLS BY PRESSING STICK RIGHT AND RUDDER LEFT. KEEP STICK SLIGHTLY BACK.
THE NOSE IS TURNED BUT PLANE MOVES FORWARD.
RECOVERY— MOVE STICK LEFT AND FORWARD. RELEASE LEFT RUDDER UNTIL IN NORMAL GLIDE.
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FILMS AVAILABLE

Movie films that will be a great help in teaching the fundamentals of flying and plane construction are available to you. Interesting, clear, instructive sound narration. Write for information describing films on "How to Fly" and "The Construction of a Light Airplane."

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SEC Reports on Profits, Operations of Airlines

NET SALES and operating revenues of 11 airlines reporting to the Securities and Exchange Commission in 1942 totaled $168,276,000, SEC reveals in Part V of its survey, "Data on Profits and Operations," released last fortnight. In 1943, thirteen airlines reported $197,576,000 in net sales and operating revenues.

Net profit *before* income taxes for 1942 was $29,515,000 or a net of 17.5% as per cent of sales. For 1943 these figures were $29,224,000 and 14.8% respectively. Net profit *after* income taxes for 1942 was shown as $15,783,000, or 9.4% net profit as a per cent of sales. For 1943 these figures were $15,322,000 and 7.8% respectively. For the entire group, net profit after income taxes as a *per cent of net worth* was listed as 18.6% in 1942 and 14.5% in 1943.

The study, undertaken at the request of various Government agencies, was compiled and tabulated from data contained in registration statements and annual reports filed with the commission by corporations under provisions of the Securities Act of 1933 and the Securities Exchange Act of 1934. No copies were made available for the public, but may be examined in branch offices of the SEC and in depository libraries.

All figures in Part V relating to airlines follow:

Company	As of—	Net Sales	Net Profit Before Income Taxes		Net Profit After Income Taxes		Net Profit Before Income Taxes As a Percent of Worth	Net Profit After Income Taxes As a Percent of Worth
			Amount	Percent of Sales	Amount	Percent of Sales		
American	12-31-42	$26,982,000[1]	$6,626,000	24.6	$3,852,000	14.3	43.3	25.2
	12-31-43	31,451,000[1]	6,715,000	21.4	3,193,000	10.2	37.1	17.7
Amex	.....	.....	.....	.....	.....	.....	.....	.....
	12-31-43	.....[2]	32,000	.....	22,000	.....	5.2	3.6
Braniff	.....	.....	.....	.....	.....	.....	.....	.....
	12-31-43	5,045,000	1,610,000	31.9	958,000	19.	67.9	40.4
Chicago & Southern	6-30-42	2,003,000	192,000	9.6	129,000	6.4	25.9	17.4
	12-31-42[3]	1,076,000	336,000	31.2	191,000	17.8	75.6	43.0
	12-31-43	2,275,000[4]	214,000	9.4	128,000	5.6	23.0	13.8
Colonial	12-31-42	743,000[5]	140,000	18.8	19,000	2.3	27.3	24.2
	12-31-43	812,000[5]	124,000	16.7	16,000	2.	3.	2.5
Eastern	12-31-42	15,356,000[6]	5,663,000	36.9	1,886,000	12.3	53.1	17.7
	12-31-43	15,781,000[6]	5,177,000	32.8	3,077,000	19.5	41.2	24.5
National	6-30-42	931,000	214,000	23.0	170,000	18.3	35.5	28.2
	6-30-43	1,382,000	378,000	27.4	193,000	14.	59.2	30.3
Northeast	.....	.....	.....	.....	.....	.....	.....	.....
	12-31-43	3,480,000[7]	—128,000	—3.7	—97,000	—2.8	—16.2	—12.3
Northwest	6-30-42	4,923,000	778,000	15.8	430,000	8.7	42.1	23.3
	6-30-43	4,765,000[8]	579,000	12.2	300,000	6.3	25.4	13.2
Pan American	12-31-42	71,641,000[9]	5,831,000	8.1	3,780,000	5.3	19.9	12.9
	12-31-43	79,806,000[9]	3,719,000	4.7	1,930,000	2.4	11.0	5.7
Penn-Central	12-31-42	4,080,000[10]	633,000	15.5	408,000	10.0	19.2	12.4
	12-31-43	4,041,000[11]	500,000	12.4	280,000	6.9	13.	7.3
Trans. & Western Air	12-31-42	15,825,000[12]	3,670,000	23.2	2,176,000	13.8	47.4	28.1
	12-31-43	18,968,000[12]	3,620,000	19.1	2,051,000	10.8	33.	18.7
United	12-31-42	23,594,000[13]	4,759,000	20.2	2,134,000	9.	33.9	15.2
	12-31-43	27,651,000[13]	6,683,000	24.2	3,203,000	11.6	39.4	18.9
Western	12-31-42	2,198,000[14]	1,009,000	45.9	694,000	31.6	100.7	69.3
	12-31-43	2,119,000[14]	138,000	6.5	90,000	4.2	8.1	5.3

[1] Registrant states, "The charges to war contracts for the year 1942 have been reviewed in negotiation proceedings by the War Dept., which has made a final determination that no renegotiation fund was required for such year. The company believes that renegotiation proceedings for the year 1943, if initiated, will likewise result in no refund being required."

[2] Registrant was granted confidential treatment of its "Net Sales and/or Operating Revenues." The company does, however, report that "reimbursable costs incurred and billed to the Navy Dept." amounted to $5,143,000.

[3] For a 6-month interim period from June 30, 1942 to Dec. 31, 1942. Net worth ratios are adjusted to a full year.

[4] Registrant states, "There are certain contracts with the War Dept. which are subject to renegotiation . . . The officers of the registrant, however, feel that the government will not recapture more than $50,000 through audit and renegotiation proceedings to Dec. 31, 1943 and a reserve of this amount has been provided by a charge against earned surplus."

[5] Includes "Fees under cargo contract", $8,000 in 1942 and $15,000 in 1943.

[6] Includes "miscellaneous revenue (net)" $116,000 in 1942 and "miscellaneous revenue" $116,000 in 1943.

[7] Registrant states, "with respect to the Renegotiation Act . . . the company believes that no excessive profits from (war) contracts were realized in 1943." This figure includes "operations under AAF contract (less $35,000 provision for adjustments)", $2,059,000. Registrant also states, "the amount receivable and the revenue under operational contracts with the AAF are subject to possible adjustments which may result from governmental audits of costs chargeable under the contracts."

[8] Includes "fees from cost-plus-fixed-fee contracts," $492,000.-fee.

[9] Includes "transport and sundry services under cost-plus-fixed-contracts with the U. S. Government," $23,534,000 in 1942 and $40,375,000 in 1943. Registrant states, "Renegotiation of Government contracts for 1942 and 1943 is in process but it not expected to result in any adjustment."

[10] Includes revenue from fixed-fee contracts (amounts not stated) in 1942 and 1943. Registrant states in regard to renegotiation proceedings, "the corporation has been advised by the Price Adjustment Office of the AAF that no excessive profits were realized for the period to Dec. 31, 1942."

[11] Includes revenue from fixed-fee contracts (amounts not stated) in 1942 and 1943. The company's contracts covering U. S. Government business are subject to renegotiation. Registrant states, "no provision has been made for the effect, if any, which renegotiation of war contracts may have upon the financial statements for the reason that the corporation believes no excessive profits were realized."

[12] The company's contracts covering U. S. Government business are subject to renegotiation. Registrant states, "no provision has been made for the effect, if any, that such renegotiation for the years 1942 and 1943 may have upon the financial statements as of Dec. 31, 1943."

[13] Includes "other revenue (net)", $501,000 in 1942 and $511,000 in 1943.

[14] Registrant states, "the charges to the AAF, as well as the net profit for the year and the earned surplus are subject to any adjustments that may be made through renegotiation of billed and unbilled charges to Army contracts."

Krug Favors Week's Vacation

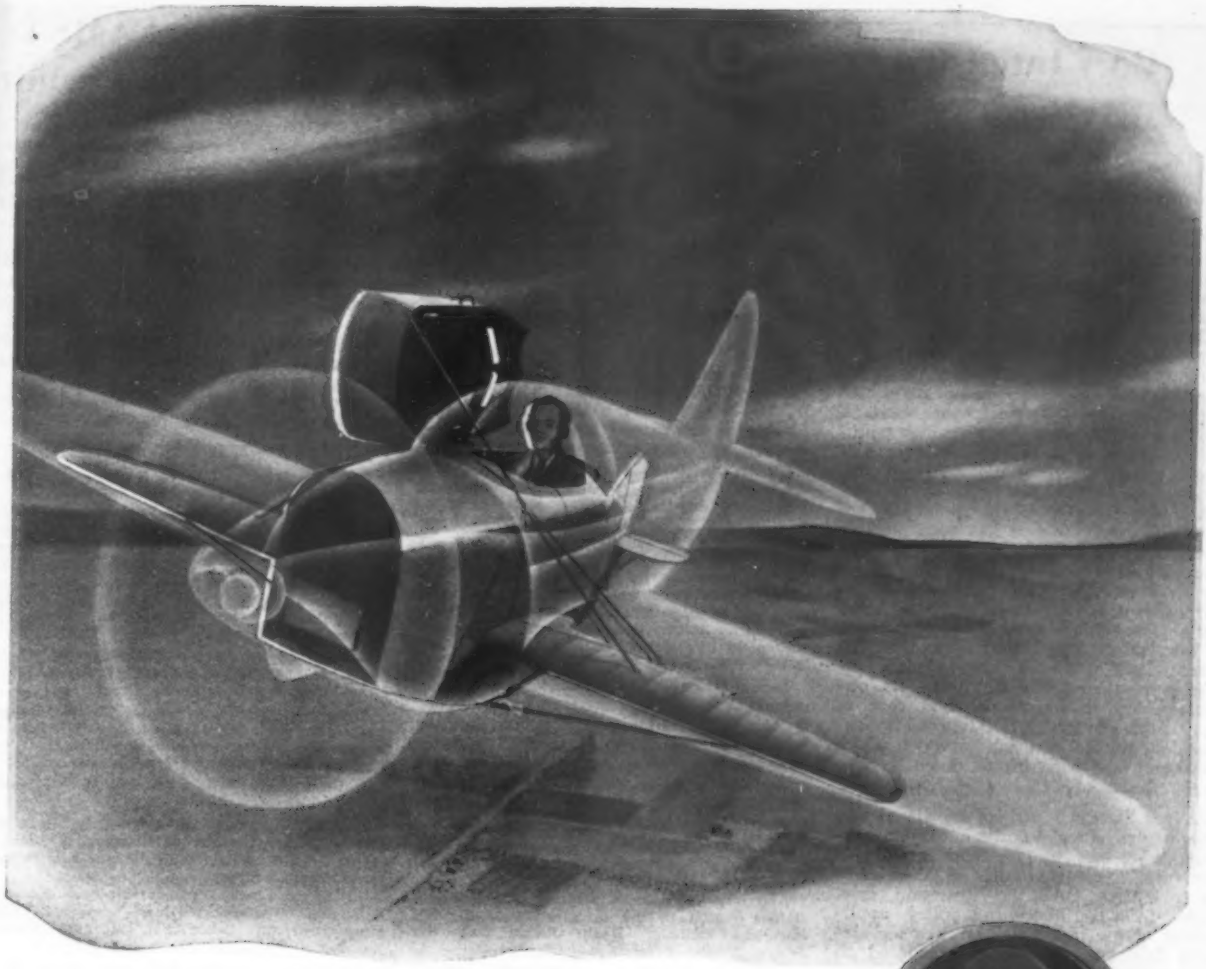
WPB Chairman J. A. Krug has suggested that all war workers should have a week's vacation taken at a time which does not interfere with production, and has urged management and labor to arrange vacation schedules now. "More production will be obtained over the whole year if the worker takes a week off to rest and do all the things he has been meaning to do," he says.

Machinery No. 1 Commodity

In volume and frequency of shipping, machinery is the Number 1 commodity of wartime air express, according to the Air Express Division of Railways Express Agency. Moving on priority, plane loads of machines, replacement parts, new and improved mechanical devices, tools, and blue prints form the bulk of essential shipments.

Aviation Country Club Opens

The Lake Susquehanna Airport, Blairstown, N. J., is being operated as an aviation country club by Otto Aviation Corp. The field is on the grounds of the Villa Sunset, a resort hotel with rooms and restaurants for pilots, and sports facilities of all types. A complete flying school is now in operation at the airport which will also serve as a sales agency for lightplanes.



THE LINK TRAINER has played an indispensable part in the excellent operations and safety record of the nation's airlines and Air Forces. It has been steadily improved until, in the latest model, its flight-like instrumentation and controlling devices dramatically duplicate practically every cockpit operation necessary in the piloting of a plane. The Kollsman flight, navigation and engine instruments used in the Link Trainer are especially designed for the purpose, simulating in every respect the action of such instruments in actual flight. Other Kollsman devices, such as synchronous remote control motors, provide the instant indication and control required between the cockpit and the instructor's desk. Dependability and accuracy of these instruments and devices as they appear in the Link Trainer are of the same high standard which has won for Kollsman the respect of all aviation.

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CAA Intensifying Route Designation Activities Under Two Categories

THE Civil Aeronautics Administration is moving ahead with the designation of more than 40 airways, under a ruling of the general counsel's office that the Civil Aeronautics Act requires that the CAA shall designate an airway over any route authorized for scheduled air carrier operations by the Civil Aeronautics Board.

CAA is intensifying its activities in this respect under two categories—Category 1, dealing with routes between two points listed in the operator's certificate which are not connected by designated airways, and Category 2, routes between two points connected by an indirect airway, or airways, where direct operations will constitute a substantial saving in flying time.

A major problem in the designation of airways during the war has been possible interference with military training. For example, some new routes certificated by the CAB have traversed bombing ranges and other training areas, and the Army has objected to the designation of airways on that basis. The Interdepartmental Air Traffic Control Board has in most instances sustained the Army in its objections but it was understood that as late as March 25, IATCB agreed to reconsider applications for airways which previously had been turned down.

Representatives From 4 Departments

IATCB has had control of all airway designations since war time service patterns were set up for commercial air carriers. Representatives on the board are from CAA, CAB, the Army and Navy. Under IATCB's liberalized policy, applications of the individual carriers for airways designations will be considered on their respective merits.

As a result, the CAA has requested operators to make application for any new routes, or extensions, as far in advance as possible. Should proving runs or survey flights be necessary, immediate action should be taken to accomplish such flights in order that the proposed route can be properly cleared with IATCB, CAA said, adding that the survey should include investigation of the nature, extent and the probably duration of the military activity existing in any danger or caution areas on the route.

The largest single request for airways designation under Category 1 came from All American Aviation which asked that an airway be designated for its total of 1568 route miles between all cities served on its system. Other requests under this category follow:

American Airlines—El Paso Radio Range to Alamo Radio Range Station via Marfa and Dryden, Tex., and/or Wink, Tex., to Laredo via Dryden and Eagle Pass; Rodeo, N. M., to Tucson, Ariz., via Douglas, N. M.; Intersection of NE leg of South Bend, Indiana Radio Range Station and SE leg of Battle Creek, Mich., Radio Range Station to Battle Creek, Mich., Radio Range Station.

Braniff Airways—Ft. Worth, to Lubbock, to Amarillo, Tex., (from Abilene, Tex., on G-5 to Lubbock, to Amarillo on G-4) Kansas City, Mo. direct to Topeka, Kans., thence to Wichita, Kans.; Tulsa, Okla., to Little Rock, Ark., via Muskogee, Okla. and Ft. Smith, Ark.

Chicago & Southern Airlines—Shreveport, La., Radio Range Station to Houston, Tex., via Jasper or Lufkin, Tex.; Memphis, Tenn., to Detroit, Mich., via Paducah, Ky.; Evansville, Ind., Anderson-Muncie-New Castle, Ind., Marion, Ind.; Ft. Wayne, Ind., and Toledo, O.

Delta Air Lines—Atlanta, Ga., to Knoxville, Tenn.; Shreveport, La., to New Orleans, via Baton Rouge and Alexandria.

Continental Air Lines—Albuquerque, N. M., to El Paso, Tex., via Roswell, Hobbs and Carlsbad; Roswell to Carlsbad, direct; Dodge City, Kans., to Red Airway No. 35; Denver, Colo., to Hutchinson, Kans., direct.

National Airlines—Charleston, S. C., to Philadelphia via Wilmington, S. C., and Norfolk, Va.

Transcontinental & Western Air—Pittsburgh, Pa., to Cambridge, W. Va., via Wheeling, W. Va.

Pennsylvania-Central Airlines—Morgantown to Charleston via Clarksburg, W. Va.

Eastern Air Lines—From the intersection of the E leg of the Lake Charles radio range and SW leg of the Harding Army radio range to Harding Army radio range station to intersection of SE leg Haring radio range and W leg New Orleans radio range.

Cia Mexicana de Aviacion—From center line of on course signal of El Centro, Calif., radio range at Mexican Border to El Centro, Calif., radio range station to Indio, Calif., radio range station to Intersection of N leg of Indio and E leg of Riverside.

Designation of 18 airways and airway segments were requested under Category 2, which includes routes between two points connected by an indirect airway, or airways, where direct operations will constitute a substantial saving in flying time. Following are the requests made under this category:

Transcontinental & Western Air—Kansas City, to Columbia, Mo., direct; Goffs, Calif. to Fontana, Calif. (Danger Area).

American Airlines—Cincinnati, Ohio Radio Range Station to the intersection of the NE leg of Cincinnati Radio Range and the W leg of the Columbus Radio Range.

Braniff Airways—Dallas, to Houston, Tex., direct; Dallas, to Tulsa, Okla., direct.

Eastern Air Lines—Columbia, S. C. Radio Range Station to Savannah, Ga., Radio Range Station, direct; Charlotte, N. C. Radio Range Station to Raleigh, N. C. Radio Range Station, direct; Atlanta Radio Range Station to Tallahassee Radio Range Station via Albany and Columbus, Ga.; Losoya Fan Marker to Arcola Fan Marker via Yoakum, Tex.

Continental Air Lines—Carlsbad, N. M. to Delaware Springs, Tex., direct, (Danger Area); Hutchinson to Salina, Kans., direct.

Northwest Airlines—Helena Radio Range Station to Livingston, Mont. via SE leg of Helena and NW leg of Livingston Range. (Livingston Range presently inoperative).

Mid-Continent Airlines—Joplin, Mo., to Kansas City, direct.

United Air Lines—Salt Lake City, Utah to Burley, Ida., via Stravell; Chicago, to Hinckley via Walnut; Harrisburg, Penna., to Bellefonte, Penna., direct.

United Air Lines, Transcontinental & Western Air, and Western Airlines—Evergreen Fan Marker to the Lebec Fan Marker, Amber No. 1.

CAB Grants LAMSA Temporary Permit

The Civil Aeronautics Board last fortnight granted Lineas Aereas Mexicanas, S. A. (LAMSA), a Mexican corporation, a temporary foreign air carrier permit for the transportation of persons, property and mail between Cananea, Sonora, Mexico, and Nogales, Ariz.

The permit is effective from May 15, the date it was signed by President Truman. LAMSA has been maintaining its Mexican service through Nogales, Ariz., since Oct., 1944, by a temporary permit because of unfavorable airport conditions at Nogales, Sonora, Mexico.

The latter permit expired May 5, making the present proceeding necessary.

Western's Directors—Directors of Western Air Lines for 1945 are: left to right, seated, George Albert Smith, new president of the Church of Latter-Day Saints (Mormon), and President William A. Coulter; standing, Glenn C. Wharton, Omaha; Stanley W. Guthrie, senior member of legal firm, Guthrie & Darling, Los Angeles; and Leo H. Dwerlkotte, executive vice president.

Airline Commentary

DEAR E. B.—From far-off Calcutta we have been getting your letters and whether you know it or not, not one letter has arrived without mentioning the terrific heat. Having worked in Washington since 1935, you ought to know what heat is—so if you are complaining, it *must* be hot.

This is another fill-in column for you but I'm hoping those columns you wrote about are on their way and can start running in the next issue. We read with interest that you are taking some trips around India before going into China, and you ought to know that Dick Cowell of Curtiss-Wright went into ecstasy about your stories of the Curtiss Commando. Guy Vaughan, C-W's president, wrote in glowing terms, too. Just don't let the heat and the atabrine get you down.

An orchid to Delta's Jim Cobb for making TIME with a photo and good caption on hauling tomato seedlings. Good illustration of what air cargo will do after the war, and Brother Cobb is on the job as usual.

According to our good colleague from across the seas, *The Aeroplane*, Trans-Canada Air Lines has the names of 54 persons who have requested space on the first peacetime commercial flight over the North Atlantic. All of which makes us wonder how many U. S. airlines have such reservations. Pan American has always had "first ride" demands and so has American Export. Does American or TWA have applicants? We hear by the grapevine that some of the companies have had lots of applications but have wondered how true it is.

It's rather amazing how widespread is the belief that just because hundreds of applications have been filed with the CAB for 'umteen million miles of air routes, the CAB will grant permits for all of these companies in due course. In actual truth a very small percentage of this applied-for mileage will see the light of day during the next five years.

MacDonald Bryan, National Airlines' director of public relations, insists the following story is true:

A young lady appeared at the Jacksonville airport ticket office and got in a line forming to one side of the office. It seems that new employes were being interviewed that day and she was given the usual long, complicated employment application blank. She filled it out in full, took it back to the counter. She gave it to Jeanne Sweeney, reservation agent, and explained that this was her first plane trip and that she had no idea there was so much red tape connected with getting a seat.

You can blame Bryan for this; we only repeat the story.

We just happened recently to see some short news oddities which an airline publicity man had sent to a national publication. One comment isn't intended as a reflection on any individual airline publicity man because the standard is high, but we were a little amazed at the caliber of the items put out in this instance for general publication. One of them dealt with a landing in the pioneering days when the ship landed on a cow and the lights at the airport were temporarily out. Another item, also recalling the old days of flying, dealt with two passengers getting drunk and fighting on the plane. Another dealt with a more recent flight which bucked a heavy head wind and passenger after passenger started getting airsick, except a Texan who said, in effect, "Ride 'em cowboy."

Now, really, in all seriousness, is that type of publicity good for air transport in 1945? Landing on a cow, airport lights out, drinking and fighting on a plane, and passengers getting airsick! Public Relations, where art thou?

—W. W. P.

V-E Day at 10,000 Ft.—United Air Lines observed V-E Day by giving passengers 'Victorygram' medallions as souvenirs of the historic day. Apprentice Seaman Carroll M. Eisenhower—no relation of 'Ike'—is shown receiving his token from Stewardess Mildred Mathews.

Pan-Maryland Places Order For Taylorcraft Transports

Pan-Maryland Airways, Inc. has placed an order with Taylorcraft Aviation Corp. for the first of a fleet of small transport planes of a type not heretofore marketed, to be used in air freight and taxi operations covering most of Maryland. The news service is expected to start in July or August, and the company expects to eventually put 40 planes in service, some for passengers only, and others with the seats removed for cargo.

The new airline will base at Baltimore, with routes fanning out to cover most of the state. One route will run to Ocean City with five-minute intermediate stops at Annapolis, Easton, Cambridge and Salisbury. A second between Baltimore and Cumberland will also serve Westminster, Frederick and Hagerstown, and a third will run from College Park to Bel Air via Baltimore and Havre de Grace. As soon as the company can get delivery on a sufficient number of planes, it expects to run flights on each of the three routes every 15-30 minutes. Fares will range about midway between bus and rail, with probable fares of $1.60 for Baltimore to Easton, and $4.00 from Baltimore to Cumberland.

The new company already has a contract with a Baltimore department store to make same day deliveries to the Eastern Shore, and has been approached about delivering crabs and other seafood from the Eastern Shore to Baltimore. Each plane will carry an 800 lb. payload, and a tentative freight rate has been set at .0002 dollars per pound mile.

The planes carry four passengers and are of a new type with a high lift wing which enables them to operate out of the smallest airfields with a full load.

Officers of Pan-Maryland Airways, Inc., are G. Bernard Fenwick, Jr., president, James Sammon, vice president, Colston Young, vice president in charge of traffic, and George Constable, secretary.

Los Angeles Municipal Airport Soon Ready for Regular Airline Flights

Regular airline flights are expected to be made from the Los Angeles Municipal Airport by mid-July or the first part of August as a result of further improvements at the field and passage of the $12,500,000 airport bond issue.

Following the recent voting of the bond issue, Woodruff De Silva, airport manager, has speeded work on expanding and improving the present site. It probably will take eight to 12 months to condemn all the land needed for the enlarged terminal. The city attorney has been instructed to prepare an ordinance to condemn 1325 acres to add to the present 625-acre site. In addition, the city will pay delinquent county taxes on 420 other acres and acquire this area at a relatively nominal cost.

It is estimated that a total of $1,300,000 will be expended by August 1 for grading, storm drains, sewers, apron paving and in the construction of four buildings, electrical work, parking facilities for 1000 autos and entrance work.

TWA, United, Western, American and Pan American are expected to have nose hangars built for passenger planes by July 1. These will be set up beside concrete hangar and passenger loading aprons. In addition, the city will construct a two-story service building to house airport offices, weather bureau, post office, Civil Aeronautics Administration and other main offices. It also will include a restaurant.

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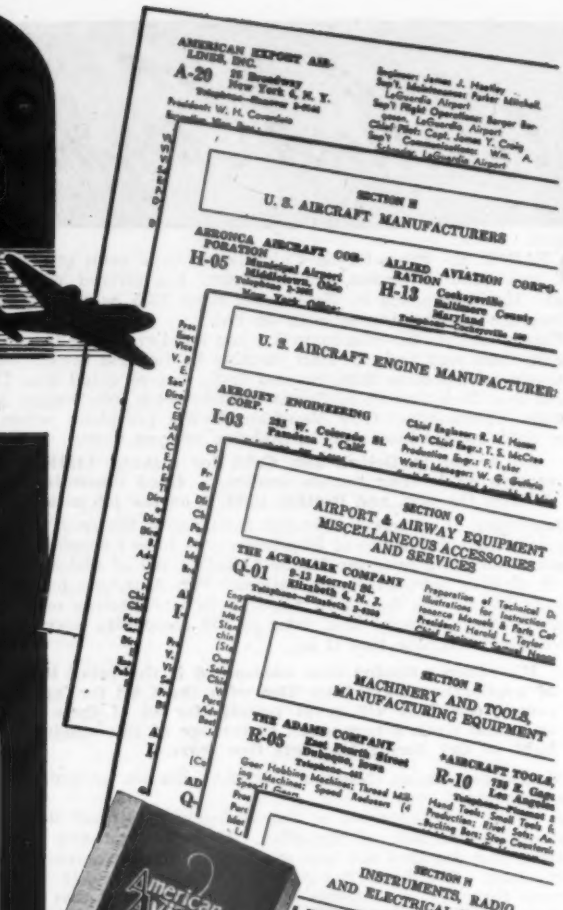

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Taking Temperature—Dr. Erston V. Miller of the U. S. Department of Agriculture (right) is shown taking the temperature of a bunch of tomato plants in flight as a 5,000-pound load is moved via Delta Air Lines from Tifton, Ga., to Bowling Green, O., for transplanting the same day. Center (holding the plants) is Harry A. Hornbuckle, who grew the plants for H. J. Heinz Co. Paul W. Pate (left), superintendent of air cargo for Delta, went along to observe results of the experiment as an observer.

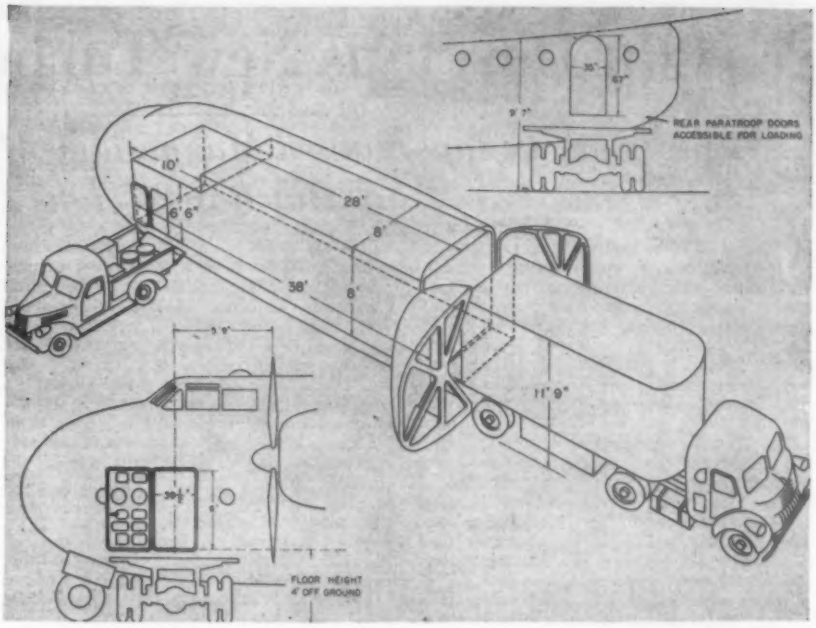
The Heinz Company reported the first plants air-shipped were received in better condition than any previously sent by ground transportation. While a formal report is yet to be made, Government scientists who accompanied the shipment to test the effect of altitude, humidity changes and other factors, said the shipment was "very successful and offers great possibilities." The Agriculture Dept. representatives were Dr. William D. Moore of Ft. Lauderdale, and Dr. Erston V. Miller of Orlando, Fla.

The first plane-load shipment of tomato plants was an emergency experiment attempted after growers declared hot weather and rain had forced growth of plants ahead of schedule. Earlier shipment had been prevented by cold weather in the north. Many thousands of dollars worth of plants have been lost in the past due to the fact that they were too large for successful transplanting.

Delta removed the seats from a 21-passenger airliner and loaded it with about 2½ tons of tomato plants for the four-hour flight to Ohio, which permitted some of the transplanting to be done the same day the plants were pulled. Experiments are being made to determine the best method of packing. Henry A. Hornbuckle, of the Service Plant Company, the grower and shipper, said economy in packing would offset the higher air cargo rates.

'Agricultural Operators' Organize

The "Agricultural Airplane Operators' Association" has been formed in the Pacific Northwest. The organization includes operators engaged in airplane agricultural dusting and spraying business. H. A. Poulin, Central Aircraft, was elected president; Bruce Coombs, West Air Co., vice president; and Verla Sifford, Central Aircraft, temporary secretary treasurer. The board of directors includes: Pete Benzil, Toppenish Dusting Co.; Lester Mills, West Air Company; Russ Parkhill, Wenatchee Air Service; Mac Anderson, Ellensburg Flying Service; Frank Barker, Barker and Dean; and Joe Scaman, Central Aircraft.



Accessible Packet—The ease with which the C-82 Packet can handle bulky air freight is indicated in these drawings. Two loading doors for small cargo, one at the front and the other at the rear, are shown at left bottom and right top. In the center is a perspective view of the cargo compartment showing its 2,312 cubic feet of space, straight sides and level floor at truckbed height.

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WHITING CORPORATION

Aviation Division

Wright Develops New Turbosupercharger

Contained in Clam-Shaped Magnesium Alloy Housing Hardly Larger Than Hat Box; Weighs 108 Pounds

A NEW TYPE turbosupercharger said to be lighter in weight, more compact, and more adaptable to varying aircraft engine arrangements than any other supercharger to date has been developed and is now being produced by Wright Aeronautical Corp. Proposals already have been made for its installation in forthcoming commercial transports and warplanes.

The Wright turbosupercharger weighs 108 lbs. and is contained in a clam-shaped magnesium alloy housing hardly larger than a hat box. The turbine wheel is 11.44 in. in diameter and has 54 buckets. The impeller is 12.5 in. in diameter and has 22 blades. There are 35 nozzles on the nozzle box.

When operating at 21,000 rpm, the Wright turbo will maintain a supercharger outlet pressure of 31.67 inches of mercury at 23,100 ft. when used with an engine providing a rated airflow of 136 lbs./min.; and when operating at 23,000 rpm, it will maintain an outlet pressure of 31.67 in. of mercury at 26,800 ft. when used with an engine providing airflow of 147 lbs./min.

An outstanding feature of the new turbo is the construction of its turbine buckets which have been designed to withstand engine exhaust temperatures of as high as 1700 degrees F. and permit it to be connected much closer to the engine than previous turbosuperchargers. This has been accomplished by a combination of metallurgy and design. The buckets are fabricated from a special alloy—Westinghouse K42B—which is composed principally of nickel, cobalt and chromium properties, and are of hollow construction throughout to allow a stream of cooling air to pass through their entire length. As the wheel rotates, this air is forced out of the outer end of each bucket by centrifugal force, thus providing an inherent pumping action. The outer parts of the buckets are concave on one side and convex on the other, and it is on the concave surfaces that the exhaust gases impinge to drive the turbine wheel. As the hot gases strike these surfaces, the inner air which is introduced through the bore of the nozzle box to the inner turbine wheel hub, and thence fed to the buckets, cools the material of the buckets to a relatively low temperature despite the elevated temperatures of the exhaust gases.

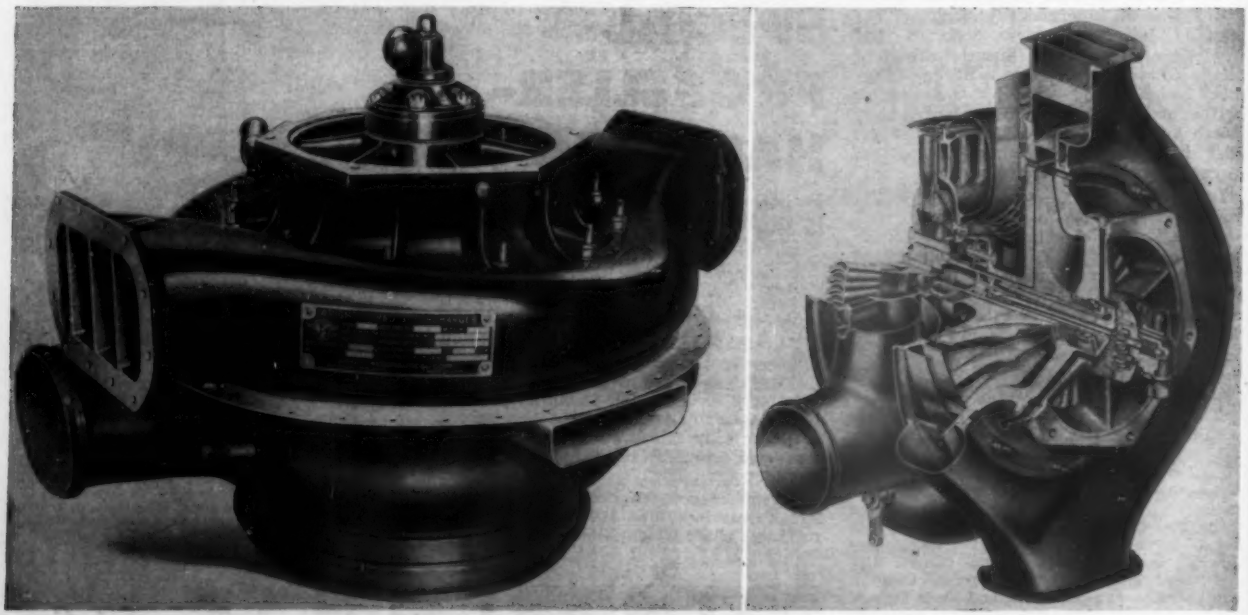
Another means used to divert heat is heat shields. Two of these are used, one on each side of the nozzle box. The first, which surrounds the nozzle box support, is designed to take the heat away from the compressor units, and the second, lying between the nozzle box and turbine wheel, to divert some of the heat from the cooling air on its way to the buckets.

A second unusual feature of the Wright turbo is the locking system devised to prevent the buckets from pulling out when the turbine wheel turns at high speed. The inner ends of the buckets are flat on two sides to permit placing one bucket close against the other, and the other two sides contain teeth for mating the buckets with the concentric teeth of the hubs. When the two hubs are bolted —by means of five outer and one center bolt—the buckets and hubs are securely locked together.

All parts of the exhaust section with the exception of the turbine wheel buckets are made of stainless steel.

In the compressor unit, the diffuser is integral with the impeller shaft housing. The impeller is mounted on a tapered shaft section which is bolted to the turbine wheel. The turbosupercharger inlet housing besides serving as an inlet for atmospheric air contains passages for incoming lubricating oil, scavenge oil, and pressure gage oil.

The Wright turbosupercharger is equipped with an Eclipse, Model 827, or a Delco Remy regulator. The latter controls engine carburetor pressure by regulating the supercharger waste-gate, and incorporates no device for maintaining a minimum turbine speed, or for locking out the turbo. Overspeeding of the turbine wheel is prevented by an aneroid-type arrangement in the regulator which limits the compressor discharge pressure that can be obtained at high altitude. Controlling of the waste gate is done solely by the regulator as it sets up the pressure called for by the pilot in his



Wright's New Turbo—Shown here, left, is the first photograph of the new turbosupercharger developed by Wright Aeronautical Corp., which is said to be lighter in weight, more compact and more adaptable to various engine arrangements than any other supercharger yet produced. The cutaway, at right, shows the compact arrangement of turbine and impeller, and the arrangement for air-cooling the hollow turbine buckets. Total weight of the Wright turbo is only 108 lbs. and its clam shaped magnesium alloy housing is hardly larger than a hatbox.

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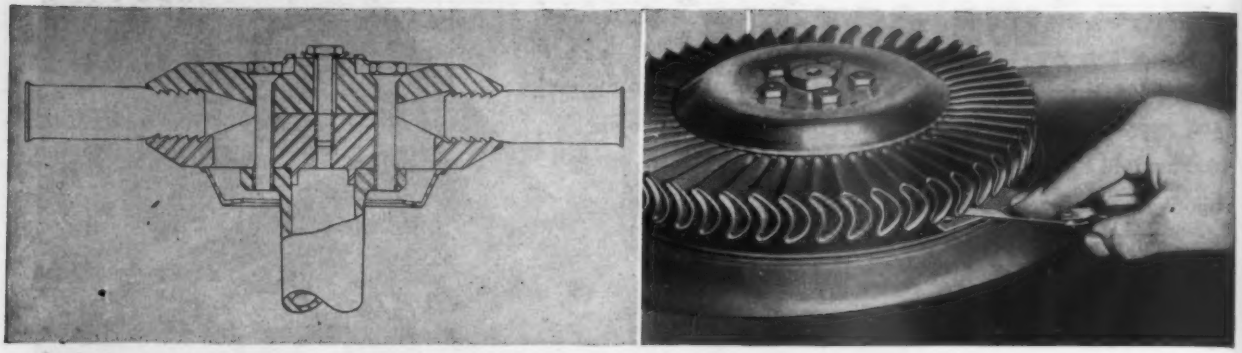


Hollow Blades—The hollow construction of the turbine buckets in the Wright turbo, right, permits air cooling, one of the big reasons for its ability to withstand temperatures up to 1700°F. The buckets themselves are made of Westinghouse K42B, a special alloy with extremely high heat resistance. Two sides of the inner end of the turbine buckets contain teeth for mating them with the concentric teeth of the hubs. When the two parts of the hub are bolted together as shown at left, the buckets are securely locked in place and able to withstand the centrifugal pull of high speed rotation.

manipulation of the regulator control lever, and the pilot does not, cannot, and should not attempt to operate the waste gate.

Announcement of the Wright turbosupercharger at this time takes on added significance in the light of Wright's recently stated intention of entering the gas turbine field. The turbosupercharger is essentially a "gas turbine in reverse" and experience gained in its development should prove invaluable in the newer project. Actually the two projects are being handled independently, according to Wright engineers, but the "know how" of both projects is largely interchangeable, and Wright's successful development of a turbosupercharger places it in the forefront among the conventional engine manufacturers in this new and important field.

Some Problems of the Airline Helicopter

(Presented below are excerpts from an address by R. W. Ayer, chief operational engineer of American Airlines, before a recent meeting of the American Helicopter Society, analyzing problems which must be solved in adapting the helicopter to airline use.)

THE most important question is that of safety. Is the helicopter safe enough as it exists today to be used as a public vehicle If not, why not, and what can be done to make it so? Quite aside from the humanitarian angle, the first economic consideration in a vehicle is its relative safety compared to other vehicles. You can't sell safety—you simply must have it before you can sell transportation.

We must strive to create in the passenger, a real feeling of security. Logic based on the accident record may tell him that a certain vehicle is safe, but if the vehicle frightens him, he will hesitate to use it frequently. For this reason, it is important to have such reassuring characteristics as a low vibration and noise level, a smooth ride, good comfortable seats, a pleasant and agreeable hostess, and even a good smelling interior. Let's not forget the DC-3's contribution to schedule flying, a large part of which was its quiet, comfortable and pleasant ride.

Then again, the fear reaction attendant upon being transported by a windmill is very real and will be for some time. There are some things fundamentally different between being transported on wings that whirl, and on wings that do not. Certainly this is true from a structural standpoint, and I am sure that airline personnel will want to examine and question the structure of the rotary wing system if they are to operate a helicopter.

Although most of the structural safety questions seem to be limited to the hub and blade, the functional safety questions go on forever and are characterized by such remarks as:—"What happens if the rotor slows down and the blades fold up?" "Can I get down safely if the tail rotor stops?" "If I hit a bird, does he get killed or do I?" "Is a two-engine helicopter as safe as a two-engine airplane when one engine stops?" "How do I land without power and is this harder to do at greater loads?" "What happens if I lose all power suddenly while hovering at low altitude?"

The last two questions seem to me to involve the most important operational hazard, namely, that of landing without power. Although in an airplane with four or more engines we can reasonably assume that a landing without power will practically never have to be made, it is still desirable that it be possible. I should think it should follow that in a helicopter with more mechanism susceptible to failure, a power-off landing from a reasonable height should be possible on smooth ground without injury. This would appear to limit the disc loading (assuming no automatic assist power) to that which would permit a flare from the optimum descent speed to a rate of descent that could be handled by the landing gear.

Concerning the hazard of loss of power during hovering flight at an altitude from which optimum autorotative flight cannot be established, I should think the solution would surely have to be a duplication of power plants and associated mechanisms unless one were to reduce the machine's utility by avoiding such a flight regime at all times.

There is yet another operational hazard which I personally feel must be very important. The remarkable ability of the helicopter to fly at low speeds tends to encourage flight in closer proximity to obstacles. This calls for nearly perfect controllability, and better-than-average stability. More important even than in an airplane, the ability to accomplish the intended multi-directional flight-path with micrometer precision will be a top must in the helicopter.

"Can the vehicle provide schedule regularity?" We all know from bitter experience the degree to which aviation's progress is being blocked by the airlines' inability to guarantee a customer his reasonably on-time arrival at destination. It is a number one industry problem at the moment. Therefore it is only natural that the airlines would be hesitant to consider a new type of vehicle unless it promised at least equal schedule reliability.

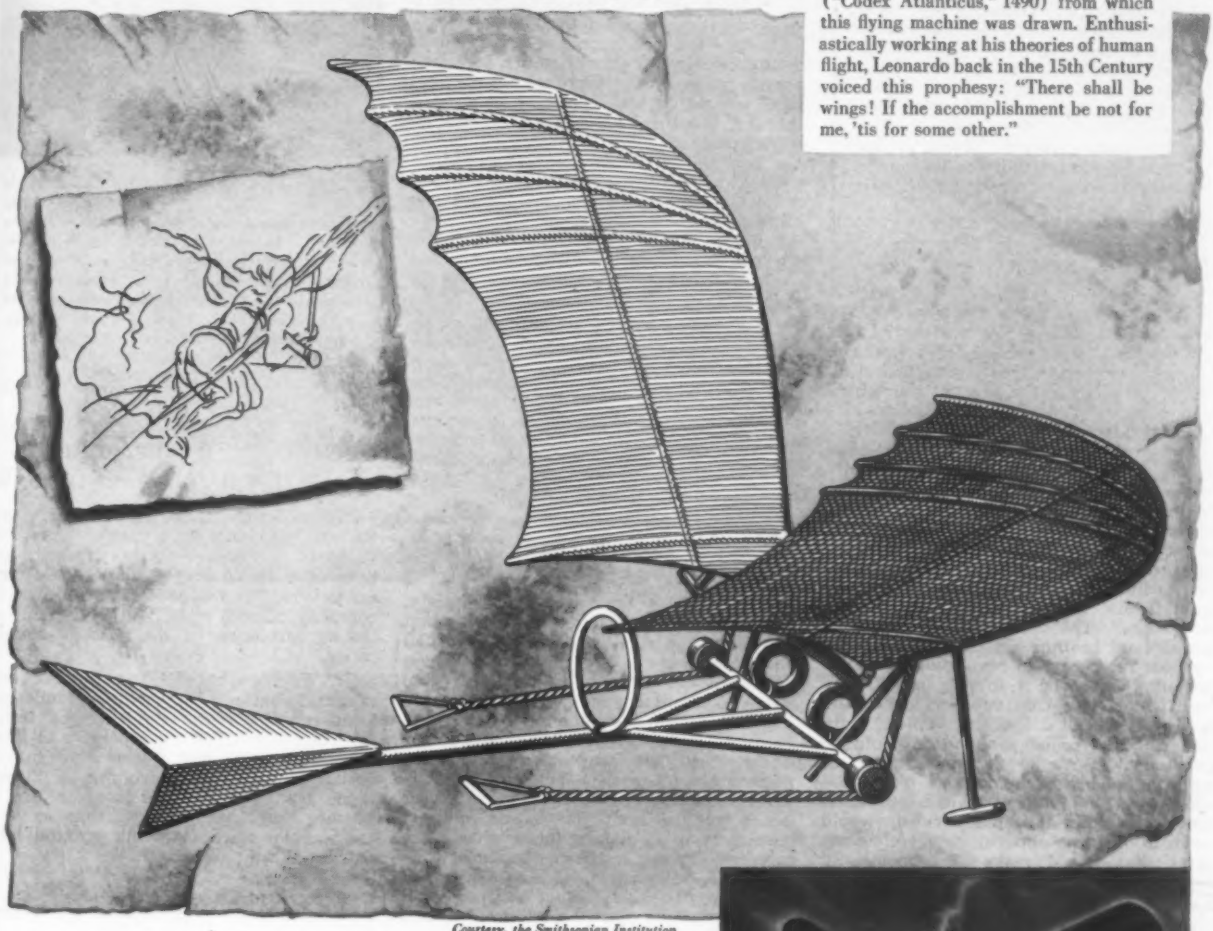
Specific questions bearing upon the ability of the helicopter to achieve schedule reliability in operation, include the following: "Can it be flown on instruments into all of the intended landing places, under the intended operating conditions, and under what minimum conditions of ceiling and visibility can it be landed safely?" "What new ground and air-borne navigation and traffic control facilities are necessary?" "Can the helicopter safely negotiate winds up to, say 50 mph?" "Can provisions be made to handle all presently known icing conditions and what is the pay load or performance penalty for such provisions?" "What density of traffic in and out of what sized landing areas can be handled safely and by what specific procedures?" And, "If taxiing and/or parking becomes critical in the design of a landing area, how will it be done, and what are the resulting areas and shapes?"

Then next comes the burning question, "What sorts of service shall we consider for the helicopter and what are their profit possibilities?" Among the characteristics of the helicopter at the moment are its relatively low speed, its relatively

THE WINGS OF LEONARDO da VINCI

. . . were low on LIFT

Years before he painted the Mona Lisa, Leonardo da Vinci sketched the designs ("Codex Atlanticus," 1490) from which this flying machine was drawn. Enthusiastically working at his theories of human flight, Leonardo back in the 15th Century voiced this prophesy: "There shall be wings! If the accomplishment be not for me, 'tis for some other."



Courtesy, the Smithsonian Institution

"*Lift*" is caused by air passing over a wing and is what makes an airplane fly. "Drag" is the resistance of air to the plane's passage and is what fights against the airplane leaving the ground.

In fact, you can trace the progress of human flight in the battles of Lift versus Drag. You can trace it in progressively lighter and more powerful propulsion... from the Wright brothers' 12-horsepower engine to today's great multi-bank motors, and on into gas turbines and jet propulsion.

You can trace it in the step-by-step reduction of Drag . . . from guy-wired biplane through cantilever internally-braced monoplane wing and the all-metal stressed-skin fuselage (both Northrop "firsts"). And you can trace increasing usefulness and control of Lift surfaces through developments like the Northrop retractable aileron, as used on Northrop's P-61 Black Widow.

What next? Northrop's peacetime goals include far-reaching advancements in propulsion . . . and aircraft designs like the Flying Wing, in which nearly every part contributes to Lift. Northrop Aircraft, Inc., Hawthorne, Calif.

The Black Widow now night-fighting on world battlefronts. Designed and mass-produced by Northrop

NORTHROP *Creators of the* ***Flying Wing*** *and the* ***Black Widow*** *P-61 Night Fighter*

LOOK AHEAD – BUY A BIGGER BOND TODAY

Helicopter to the Rescue

A Sikorsky helicopter of the U. S. Coast Guard recently effected the rescue of 11 airmen marooned after three separate plane crashes in the snowy wastes of Labrador. The helicopter was dismantled and packed aboard a C-54 Skymaster of the Air Transport Command. Then, it was flown to Goose Bay, Labrador, reassembled, and flown to each crash scene. Shuttling between each location and a nearby frozen lake, where larger planes with skis could land, the helicopter brought out the stranded men, one by one.

high cost of operation, and its ability to use small landing areas. From these come to mind at least three possible types of service. The first, a low cost aerial bus type with stops, schedule frequency, capacity and passenger accommodations roughly similar to the present short-haul land vehicle. The second, an airline terminal feeder or inter-terminal service combined perhaps with a special commuting service, and third, the strictly non-scheduled aerial taxicab. It is evident that helicopter features are particularly adaptable to these three types of service. As to the aerial taxicab, which fundamentally will have a low load-factor, airline experience is so far removed from it that I will dismiss it from consideration. The low fare aerial bus, whose land brother has done so much in the last few years to revolutionize transportation, must be a fundamentally high load-factor, low cost vehicle. Since the helicopter is not a low cost vehicle, I am doubtful that such an operation could be profitable. But the remaining type of service, the special commuters' run, possibly combined with the airline terminal feeder or inter-terminal service, would seem to offer the opportunity for charging fares that would make it economically feasible.

What Size, Type of Helicopter?

Assuming the answers to these questions can be provided, the next step is to inquire what size and type of helicopter to consider for this service? Also let's examine the possible competition from an airplane designed to perform the same duty. As to size, I believe it should be as big as the present limitations of helicopter design will permit. Airline experience has shown that the minimum profitable size of airplane is about equal to the present maximum practical helicopter size, let's say about 20 passengers. As to type, it appears obvious from a safety consideration that it must be multi-engine. From a consideration of the economy of operation and size, it appears quite obvious to me that the disc loading should be at the top limit of feasibility, this to be defined as the point at which it is just possible with average pilot technique to make a power-off landing from optimum rate-of-descent speed. As to configuration, it would appear that the safety considerations will outweigh the economic, and that the best arrangement will be the one which will be the most likely to turn in the best overall safety record. As to power loading, it must, of course, be high enough to permit carrying some payload, for fortunately with this vehicle the fuel load can be comparatively small and power loadings that would be excessively low for the airplane can now be considered reasonable for the helicopter. At least they should be low enough to permit a slightly positive rate of vertical climb just above the bubble, on a CAA summer day.

Having thus reached a rough approximation of the size, type and arrangement of the vehicle, we should return for some consideration of the types of takeoff and landing areas it would require. Assuming that all landings and takeoffs would be made with zero forward ground speed, the size and shape of the area might be a circle whose diameter is between 6 and 8 times the diameter of the rotor thus allowing for adequate unloading and loading space for about six vehicles. And the obstacle heights around the area should probably not be greater than the bubble height of the machine.

I now submit to you the practical possibility of competition on such a run by an airplane of similar power loading. Given the necessary wing area and high-lift devices, I am reasonably sure that an airplane could be designed to produce cost figures which might be lower than those of the helicopter. True, for a specific run it might be necessary, (and feasible), to make slight compromises in the selection of landing fields to accommodate the airplane, but I don't think such compromises would materially reduce the convenience of the service.

Granting that the questions of safety, schedule regularity and type of operation are the three most vital to be met and answered, there are a few others which I believe are worthy of mention. One concerns a suitable method for determining the cost of operation of a helicopter. In an airplane, wing loading and power loading are the two most influencing parameters on cost. Wing loading increases usually result in speed increases which reduce both direct and indirect costs, as well as making the product more saleable. Power loading reductions, contrary to popular belief, have a complicated but usually beneficial effect on the overall efficiency of the operation up to a certain point. On a helicopter I suspect these two parameters of disc loading and power loading are somewhat similar in their effect upon costs. It is only too obvious, however, that the added weight of the helicopter mechanism reduces the ratio of pay load to gross, and increases the maintenance cost considerably above that of an airplane, for comparable service. Added to this is the fact that helicopters appear to require a somewhat lower power loading to begin with. It would be highly desirable that a full and detailed comparison of these cost parameters with those of an airplane be undertaken. There likewise will be many important questions about the indirect costs. What ticket selling facilities, for instance, would be needed on a typical helicopter operation as compared to those to which we are accustomed? What could we expect in the matter of utilization, first cost, obsolescence, insurance, etc.? Until there is evidence to the contrary, I believe you will find opinion among the airline operators that helicopters, when compared with airplanes, are fundamentally more costly to operate and less productive of revenue than an airplane.

Visitors at Martin—Two leaders in the aircraft industry in India were recent visitors at The Glenn L. Martin Co. plants in Baltimore. G. D. Daftary (left) and Lalchan Hirachund (right) are shown with L. C. McCarty, vice president-engineering of the Intercontinent Corp., New York export representatives, who accompanied them to the plant.

$2,500,000 Wind Tunnel To Be Opened by C-W

Curtiss-Wright Corp. Airplane Division, Buffalo, soon will start operating its new $2,500,000 variable density wind tunnel, twin of the Southern California Cooperative Wind Tunnel at Pasadena, which, company officials state, will be capable of testing airplanes in the "fast-as-sound" range.

G. W. Vaughn, C-W president, announced that planes in the 740 mile-an-hour range, jet-propelled, can be tested at pressure conditions comparable to those found at 35,000 feet. The wind tunnel, which contains an air volume of 210,000 cubic feet, will be available for use to Eastern airplane manufacturers as well as serving as a "proving ground" for Curtiss-Wright planes.

Unscheduled Flight

Dr. Clark Millikan, director of Southern California's cooperative wind tunnel, received some actual, but unexpected experience in the operation of the huge testing device during a last-minute inspection just prior to the dedication ceremonies May 13.

Dr. Millikan was walking through a relatively slow moving part of the tunnel when his telephone connection with the outside was broken. As a result, he had no way to inform the operators to shut off the wind stream, and in order to get out he had to walk out through the throat of the tunnel, where a 105-mile-an-hour wind was blowing..

When he reached this point, the wind stream picked him up and hurled him half the length of the big tube. Unhurt by his unscheduled flight, Dr. Millikan said: "It was uncomfortable and I am not sure I would like to do it again."

BEFORE AND AFTER a B-29 "visit" to the Nakajima Aircraft plant at Ota, Japan. 755,900 square feet of roof lies gutted and blasted. Official Photo U.S.A.A.F.

LOST--

1 Aircraft Plant 105,226,101 Faces

Losing face — and losing war plants — is a regular Japanese custom these days. It is a habit they don't particularly relish, but they don't seem to be able to do anything about it.

For there isn't much argument you can put up against a fleet of, say, 300 B-29's. They go where they wish, when they wish, hit what they're aiming at. And they come back again and again.

As the size and power of these Superfortress fleets increase, so does the responsibility of all Chandler-Evans workers. For an integral part of the great Wright engines that power these bombers are CECO carburetors. They are part of the great team of parts that go into the making of a Boeing B-29. They must function perfectly and efficiently regardless of altitude or temperature. Above all, they must be dependable.

We pledge that no single thing will be overlooked to maintain, and better, the high standards that have earned CECO carburetors this responsibility.

CECO

CARBURETORS

FUEL PUMPS

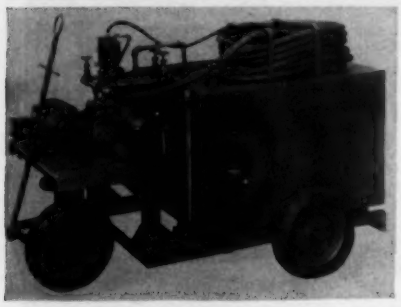
PROTEK-PLUGS

CHANDLER-EVANS CORPORATION SOUTH MERIDEN CONNECTICUT, U.S.A.

New Equipment

New Pre-Oiler Unit

Pacific Airmotive Corp., Glendale, Calif., is offering a new engine pre-oiler and oil transfer unit which is mounted on three 16-inch pneumatic tired wheels. It has a vane type



rotary pump and a 125-gal. tank. An electric immersion heater with thermostat control is provided. Two alternate power plants are available—a ¾ hp, 220 volt electric motor, or a 1½ hp, one cylinder, 4 cycle air-cooled gas engine. As an oil transfer unit it will deliver approximately 3/5 gallons per minute depending on the temperature of the oil.

Centralized Aircraft Lubrication

A centralized lubrication system for aircraft which makes it possible to lubricate many bearings from one central source has been devised by the Alemite division of Stewart-Warner Corp. According to the company, many points formerly lubricated only when the aircraft was on the ground can be lubricated during flight with the new system. In addition, it delivers a predetermined amount of lubricant to each bearing. The Alemite system has been applied to such parts as engine cowl flap rings, main landing gear, nose gear, landing flap mechanisms, cowl flap actuating gear boxes and similar items. Added weight due to the installation is negligible according to Alemite officials. On an engine cowl ring, for example, it is only 2.5 lbs. per ring or 1.6 oz. per bearing. The new system is an adaptation of the Alemite Dual Progressive System originally designed for industrial machines.

Improved Connecting Rod

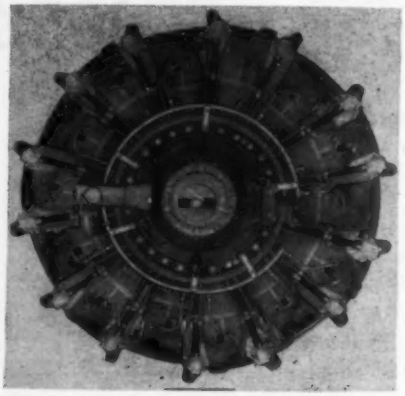
An improved aircraft engine connecting rod which has greater resistance to fatigue and corrosion has been announced by the Studebaker Corp. The unusual feature of the new rod is that instead of being polished its surfaces are first shot peened and then lacquered.

Erie Gasoline Dehydrator

A gasoline dehydrator, which according to the manufacturer is 99.99 percent efficient in removing entrained water from gasoline, has been developed by Erie Meter Systems, Inc., Erie, Pa. It consists of a large capacity tank which drops the velocity of the gasoline to a minimum, and a filter zone incorporating a specially treated fibrous cartridge which when saturated with gasoline repels water and causes drops to form and fall to the bottom of the tank and into the sump chamber. Two types of safety control are offered for abnormal water conditions. The first is an electronic water detector probe which is connected to the pump control switch and automatically stops the pump when the water level in the sump chamber reaches the danger line. The second is a float operated water lock valve in which a float gradually rises with the water level and at the predetermined danger point actuates the shut-off valve to close the main outlet line, thus trapping all the water in the dehydrator and preventing the entrance of any water into the discharge line.

Constant Power Control

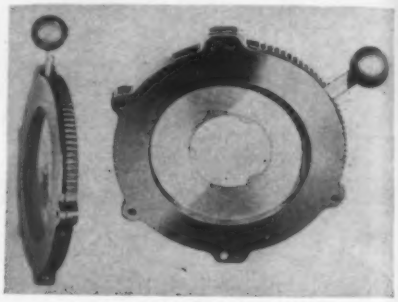
An "automatic engineer" for aircraft power plants which, when used with a turbosupercharged engine, sets of its own accord the throttle, engine speed control and manifold pressure regulator to maintain the power output previously selected by the pilot, regardless of changes in altitude, has been developed by General Electric Co., Schenectady, N. Y. With the new control, a single lever in the cockpit enables the pilot to provide the correct power plant regulation with one movement and then pay no more attention to it. Previously the pilot had to make three separate adjustments. Other advantages of the new control, according to the company, are that at extremely high altitudes it limits the maximum operating speed of the turbo to a safe value, that it immediately provides war emergency power when called upon to supply it, and, that by reducing the amount of control linkage and cables between the power plant and cockpit, it reduces lost motion and provides more positive, faster and smoother response from the engine. When necessary, the pilot may take control away from the automatic engineer and regulate manifold pressure and engine speed separately.



Fuel Saver—The Sperry-M.I.T. Detonation Indicator, the detonation pick-up and harness of which is shown here attached to a 14-cyl. radial aircraft engine, makes possible fuel savings of from 10-15 percent on long haul flight operations, according to its manufacturer, the Sperry Gyroscope Co. The pick-up unit is attached to the cylinder wall and connected through an amplifier to an indicator on the instrument panel which flashes a warning when detonation conditions occur. No piercing of the cylinder is necessary, and the equipment can be used with all types of power plant installations both in aircraft and test-stand operations. A selector switch permits immediate discovery of the cylinder at fault.

Aero Valve Control Unit

A new heat and ventilator control unit known as the Aero Valve has been developed by Smith-Mautz Co., Glendale, Calif. Built like a camera shutter with 15-18 shutter



segments, it has 36 positive control stages. The cover and housing are of anodized die cast aluminum, and all other parts are of stainless steel. The Aero Valve is available in five model sizes with openings from two to seven inches in diameter.

Allied Radio Calculator

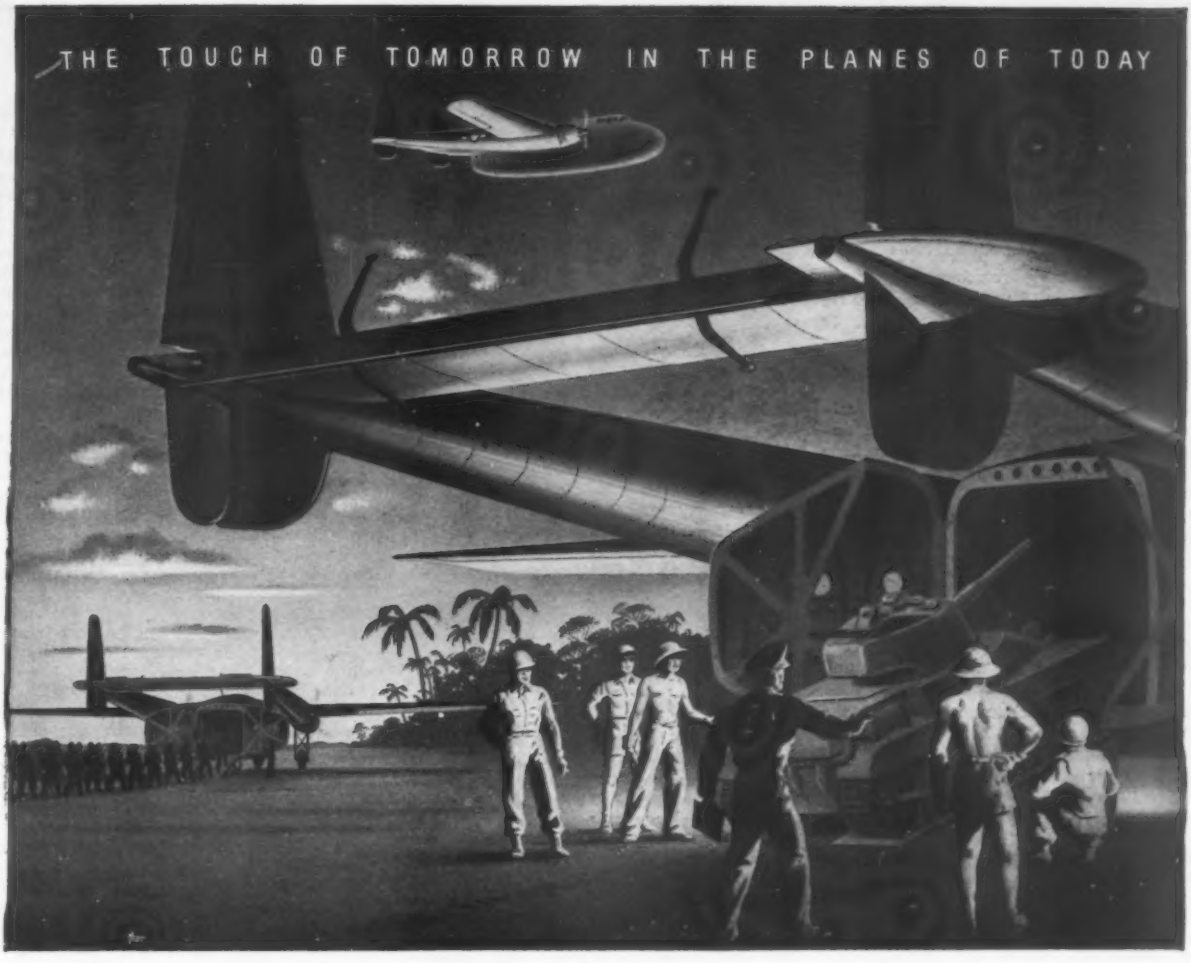
Allied Radio Corp., 833 W. Jackson Blvd., Chicago, has just announced a new Parallel-Resistance and Series-Capacitance Calculator. Essentially a slide-rule device, it is designed to provide a rapid and accurate means for determining the reciprocal of the sum of two reciprocals. Range is from 1 ohm to 10 megohms, 10 mmfd. to 10 mfd. The capacitance and resistance figures on the face of the rule can likewise serve to represent inductance, impedance, reactance or other units which can be handled in a similar manner.

Submerged Turbine Pump

Erie Meter Systems, Inc., Erie, Pa., has announced a new series of submerged turbine pumps especially adapted for airport fueling use. The entire unit can be dropped into position through a four inch opening and is available in 2 through 7 stages in 25, 50 and 75 gpm capacity for various operating pressures. A similar type of pump is available in capacities from 100 to 500 gpm, but requires proportionately larger tank openings and mounts on manhole rings.

Engine Hour Meter

An electrically operated engine hour meter which can also be used as a flight hour meter has just been announced by John W. Hobbs Corp., Springfield, Ill. Designed for instrument panel mounting, it has three hands, one of which turns a complete revolution in 10 hours, the second in 100 hours and the third in 1,000 hours. It can be operated either with the ignition switch, or by use of a special oil pressure switch. For use as a flight hour meter, a switch can be located on the landing gear. Available in 6, 12, and 24 volts DC, it measures approximately 2⅞ x 2½ inches and weighs 7 ounces.



THERE ARE NO SIDETRACKS IN THE SKY

Cargo by the ton flies straight to its destination in the "Packet," the Army Air Forces' cargo carrier designed by Fairchild and built by Fairchild and North American Aviation.

Into the spacious hold of Fairchild's "Packet" will go lethal loads of guns, tanks, paratroopers, ammunition and supplies—destination Japan.

It is nicknamed the "flying boxcar" because of its cargo capacity—2,312 cubic feet of space—and its ability to carry up to nine tons at speeds which are still restricted information. Its maximum range, with conservative loads, is approximately 3,500 miles.

Forty-two paratroopers with full equipment can be "delivered" through two rear jump doors, clear of any obstruction. An ingenious device sends equipment parachuting through special doors in the belly, simultaneously with the paratrooper's jump.

The "Packet" is loaded with extreme ease. The floor of the fuselage is parallel to the ground and at standard truck floor height. Two 2100-horsepower engines impel its flight on wings that span more than 106 feet. Its overall length is more than 75 feet and its height 26 feet.

With but minor changes, it will become an efficient and profitable carrier of cargo and passengers in peacetime, flying the main lines with never a wait on a siding.

All metal in construction, this flying boxcar possesses characteristics inherent in all Fairchild products, "the touch of tomorrow in the planes of today."

BUY U. S. WAR BONDS AND STAMPS

Fairchild Aircraft

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland

Use of Gas Turbines Calls for New Designs

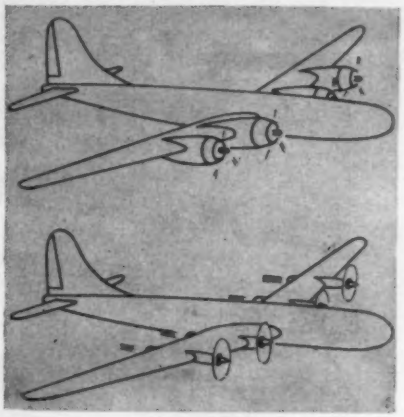
USE OF GAS TURBINES in aircraft eventually will result in new design concepts for air transportation, and comparisons of these new power plants with conventional engines should properly be made on the basis of finished airplanes designed to best fit the characteristics of their particular power plants. The size, weight, and cooling requirements of an engine, together with its efficiency in converting fuel energy into thrust horsepower and the ease with which it is installed in clean, low drag airframes determine its real economy.

It is on these hypotheses that two Westinghouse engineers, Charles D. Flagle, design engineer of the aviation gas turbine division, and Frank W. Godsey, Jr., manager of the new products division, have based one of the most comprehensive analyses of the gas turbine and its potentialities in air transport yet made public, and have arrived at the conclusion that the gas turbine-propeller engine has characteristics that give it superiority over the reciprocating engine in all speed ranges and over the jet engine in low and intermediate speeds.

Going into the characteristics of the gas turbine propeller drive, they point out that a simple open cycle gas turbine can be built today to work at a peak temperature of 1500° F. With further metallurgical progress, the life of highly stressed turbine parts operating under high temperature will be increased and the limiting cycle temperature may be elevated above this figure. With a compression ratio of 10:1 and compressor and turbine efficiencies of 85 percent, a fuel efficiency of 26 percent can be achieved. By increasing propeller efficiency to 87 percent and turbine efficiency to 89 percent, a rise in fuel efficiency to 28 percent at standard sea level conditions may be expected; and at 15,000 ft., due to low ambient temperatures, the cycle efficiency rises to 31.5 percent.

In appearance, the axial flow gas turbine for propeller drive will be a symmetrical machine, its reduction gear concentric with its rotor. Its diameter will be less than half that of a conventional engine of comparable power, permitting it to be easily buried within a fuselage or wing. Presenting little frontal area and requiring no external cooling air for itself, the gas turbine offers very little drag at high speeds, which when added to the fact that its deficiency is best at its peak load, points to its adaptability to high speed flight.

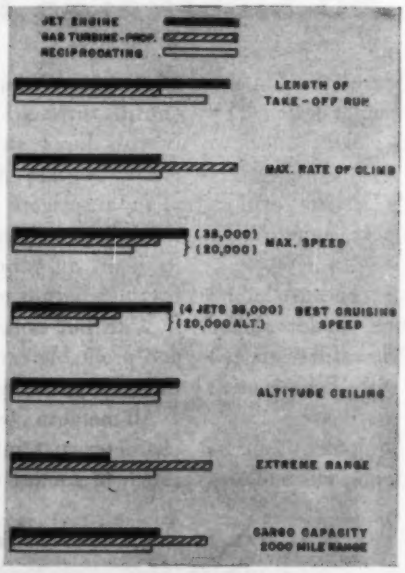
The efficiency of a gas turbine is highest at its rated load and rated rpm. As rpm decreases, the efficiencies of compression and expansion drop off and the compression ratio also decreases rapidly. Since the useful power output of the machine is the relatively small difference between the power developed by the turbine and power absorbed by the compressor, any change in compressor or turbine efficiency is magnified in its effect on power output. In fact, it is doubtful if the turbine output will be sufficient to drive the compressor—much less supply power to the propeller at much below ½ rated speed. Idling speed for a gas turbine propeller drive will be between ½ and 2/3 the rated rpm.



The cleaner aerodynamic design of the turbine powered plane (bottom) as shown here is a major advantage of this type of power plant.

The gas turbine for propeller drive operates on four to eight times the quantity of air used by a reciprocating engine of comparable power. A large exhaust jet thrust is available to supplement the propeller, since normally about 20 percent of the useful power remains in the exhaust gases as kinetic energy, although the proportion of useful power remaining in the exhaust to power delivered to the propeller can be controlled by the designer.

The gas turbine will permit a much lighter powerplant installation than will the reciprocating engine. Its installed weight should be less than ¾ the weight of the equivalent reciprocating engine installation.



The relative advantages and disadvantages of the jet engine, gas turbine and piston engine as presented by Westinghouse engineers are evident at a glance from this bar chart.

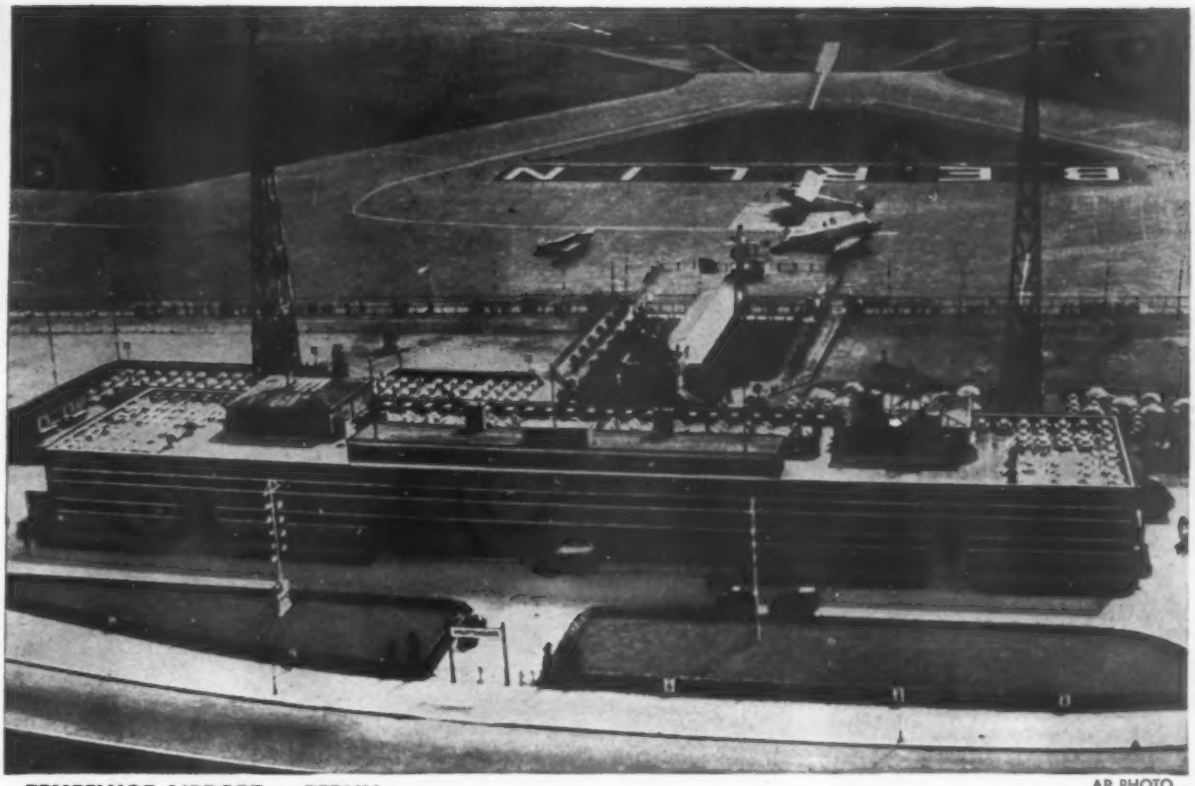
In general, operations at normal flight altitudes are favorable to economical turbine performance, approximate fuel rates ranging from .7 lbs./shaft hp/hr at 20 percent of maximum rated output to .5 lbs. at 100 percent at 20,000 ft., and from 1.0 lbs. at 30 percent to around .65-.7 lbs. at 100 percent at sea level. It is interesting to note that for rough approximation purposes, the exhaust jet thrust just about compensates for propeller losses and nacelle and cooling drag, so that the shaft power output is just about equal to the net thrust horsepower available.

The gas turbine is not a supercharged engine. Therefore, the selection of power rating must be based on altitude requirements; and for sea level operation, considerable excess power usually will be available.

Turning from the gas turbine itself to the gas turbine propeller airplane, the Westinghouse engineers point out that the gas turbine geared to a propeller has the advantages of the jet engine with respect to drag reduction and ease of installation, while at the same time retaining the high propulsive efficiency of the propeller at low speeds. The present limit of usefulness of the geared propeller turbine at high flight speeds is set by the characteristics of available propellers which lose out quite rapidly in efficiency above 500 mph. However, research on propellers is necessary for several reasons and propeller manufacturers are hopeful that the good efficiency range can be extended to considerably higher speeds. Something must also be done to reduce the necessity for large spinner diameters on present propellers in order to take advantage of the small diameter gas turbine. Some weight reductions may be possible due to the absence of torsional vibration in the turbine propeller shaft.

The principal and immediate advantage of the geared propeller gas turbine is a large reduction in airplane drag. Furthermore, it is possible to make a choice of the division of power outputs of a turbine propeller unit between jet exhaust thrust and the propeller shaft. For example, for a very high speed airplane that must still have a good take-off characteristic, 50 percent of the power might be used in jet thrust and the remainder in the propeller. For ordinary applications, however, between 20 and 25 percent of the available energy should remain in the exhaust jet, the turbine shaft recovering the remainder.

The gas turbine with propeller drive is equally adaptable to fighters or large airplanes. The improvement in fuel efficiency with increasing air speed and power results in somewhat higher cruising speeds than for aircraft with reciprocating engines. The decrease in available power at higher altitudes makes it necessary to install gas turbine power plants that may have considerably more power at sea level and for low altitude climb than is now considered normal in airplane design. This, however, is an advantage rather than a disadvantage in that a propeller able to absorb the turbine's shaft output at 20,000 or 30,000 ft. can efficiently handle the greatly increased output of the same



TEMPELHOF AIRPORT — BERLIN AP PHOTO

THIS AIRPORT NOW UNDER NEW MANAGEMENT

TEMPLEHOF AIRPORT, just outside Berlin, and one of the major airports of the world, came under new management late in April, due to circumstances beyond the control of the owners. Under its new management, it will undoubtedly serve its purpose with a greatly enlightened vision. The outlook for the immediate future is for continued military patronage, although it will lose its former principal military user. Upon the completion of certain operations now in progress in Germany, the airport will probably be reopened to civilian aviation, limited perhaps to foreign planes, owing to a serious dislocation of the airplane manufacturing industry in the Reich.

Radio Receptor Now Planning for Future with Airports and Airlines

New management brings new policies; new policies often include new equipment—which is where *RADIO RECEPTOR* comes in. *RADIO RECEPTOR* is now planning with leading airlines and airports, here and abroad, for their navigation, airport traffic control and communication ground radio requirements.

The services of *RADIO RECEPTOR* engineers are freely available for consultation with engineers, architects and consultants on municipal airports, large or small. Airport radio is a highly specialized field—come to specialists in the field. *RADIO RECEPTOR* brings to your problem not only the knowledge and experience gained in pre-war installations, but also developments born of the war.

Now is the time to plan—purchase can be deferred until later, if necessary. The predicted large demand on manufacturing facilities incident on the enormous expansion of our domestic program strongly suggests immediate action.

Another issue of *"HIGHWAYS OF THE AIR"* — a non-technical review and digest of fact and opinion on the importance of radio in aviation — is now in course of preparation. Date of publication depends upon the paper situation and other factors. Meanwhile, those interested in airport development are invited to write for a copy on their business letterhead. No obligation is entailed.

RADIO RECEPTOR

GROUND-TO-AIR AVIATION RADIO

RADIO RECEPTOR COMPANY, Inc.

251 WEST 19th STREET **NEW YORK 11, N.Y.**

Engineers and Manufacturers of Airway and Airport Radio Equipment

SINCE 1922 IN RADIO AND ELECTRONICS

HORIZONS of TOMORROW

SWITLIK SAFE-T-CHUTES are playing an important part in every theatre of war and have been the means of saving thousands of unexpendable lives.

Engineered to meet the rigors of conflict, modern Safe-T-Chutes are destined to become an ever-increasing factor in the peaceful skies of the future. Their jobs will be many and varied but backed by the genius of Switlik Engineers and the many years' experience of the Switlik Organization they will be ready to serve peace-time aviation with the same high standards of performance as has marked war-time demands.

WHENEVER YOU FLY,
WHEREVER YOU FLY,
WEAR A SAFE-T-CHUTE.
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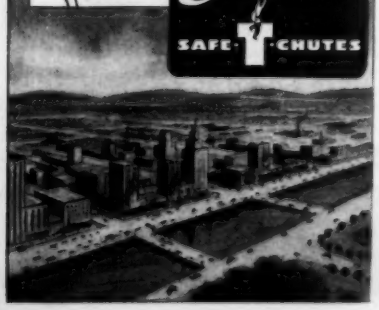
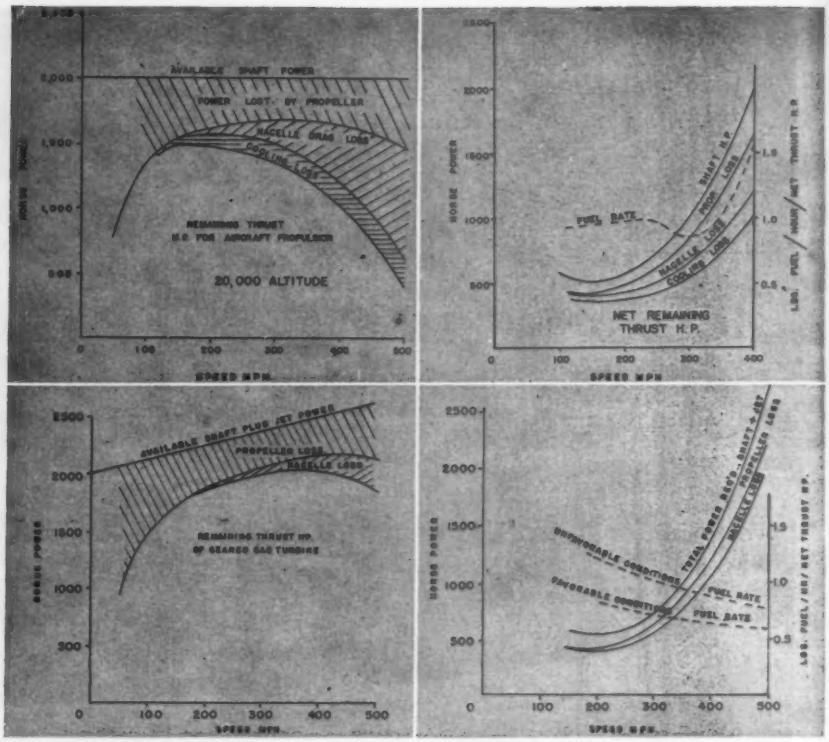




Overall powerplant performance of the gas turbine with geared propeller is shown in the two bottom figures as compared to similar performance characteristics of the reciprocating engine as shown in the two top figures.

turbine at sea level due to the denser air at low altitudes. Thus a turbine with a rating equal to that of a supercharged conventional engine at 20,000 ft. might have a take-off thrust at sea level 60 percent in excess of that of the conventional engine, permitting a much shorter takeoff run and a greatly superior rate of climb to normal powered aircraft.

The field of usefulness of the gas turbine with propeller then extends to all aircraft requiring engines of greater than perhaps 1,000-2,000 hp, and designed for speeds up to and in excess of 500 mph.

Turning to a specific comparison, the Westinghouse engineers take a typical large four-engine airplane with a gross weight of 120,000 lbs. and a constant power-plant plus fuel rate for jet, turbine and reciprocating engines. The conventional engine installation is four engines supercharged to 2,000 hp each at 20,000 ft. In the jet-propelled version four 6,000 lb. static thrust engines are used, giving a takeoff thrust of 24,000 lbs., approximately equal to that of the reciprocating engines. Once in flight, two of the jet engines will be shut off for cruising under 25,000 ft. and the other two will be used for propulsion. In the gas turbine geared propeller version four engines capable of delivering 2,000 shaft horsepower each at 20,000 ft. are used. At take-off these engines will deliver 3,200 hp each. Thus, at takeoff, the three versions appear as shown in table on Page 76.

The sensitivity of the gas turbine propeller to partial load operation is seen in the above, where an 18 percent increase in range is obtained by operating two engines close to full load and maximum efficiency rather than operating four engines at less than half load. This is a fundamental difference that exists between turbines and reciprocating engines, and it makes necessary a careful selection of turbine ratings for any given application if maximum fuel economy is to be gained. The same conditions are true of jet propulsion engines, and it is profitable to operate close to 80 percent of full rating of the turbines either by shutting down excess power units or going to a sufficiently high altitude to decrease the maximum rated output to a value near the required flight power. In the case of jet propulsion, since high speed and high propulsive efficiency go together, very high altitude operation is essential to maximum flight economy.

From these comparisons it is further interesting to note that the gas turbine propeller airplane is superior to the conventional aircraft on every count with the exception of altitude ceiling where they are about equal if the reciprocating engines are turbo-supercharged. Since turbine propeller fuel economy and installed power plant weights are both superior to those of the conventional engine, according to the figures they have compiled, the Westinghouse engineers conclude that the long range and short range load carrying abilities of the turbine propeller aircraft are superior to the conventional one. On the other hand, the jet propelled aircraft has a very light power plant installation and can get off the ground for very short flights with about five tons more payload than the conventional plane, and about three tons more than the turbine propeller version. However, jet propulsion requires so much more fuel than other types of power plants that at about 2,000 miles extreme range the jet plane loses out to the reciprocating engine and is far be-

THE KELLETT XR-8 HELICOPTER

Just released by the Army Air Forces, this photograph illustrates a new product whose evolution toward important peace-time achievements has been stimulated by the urgency of war.

The XR-8 is the first American helicopter successfully tested in flight to embody the principle of an *intermeshing twin set* of rotor blades. Structural vibration, long an obstacle to progress in rotary-winged craft, is largely removed. Many related problems have been solved. The need for long power-transmission shafts is eliminated. Weight and drag are saved, increasing pay-load.

Its whirling "egg-beater" vanes enable the XR-8 to fly forward, backward or sidewise with unusual efficiency. Like a hummingbird, it can hover motionless in the sky, or only a few feet above ground. Its vertical take-off and descent permit operation to or from any space that gives safe clearance to the sweep of its own blades.

With sixteen years of design and engineering experience in autogiro and helicopter development, the Kellett organization believes that helicopters will perform a wide range of useful jobs in the new air world of tomorrow.

"Answering Some Helicopter Questions" gives interesting facts about "wingless flight." For free copy, write to Kellett Aircraft Corporation, Dept. A, Upper Darby (Philadelphia), Pa.

KELLETT

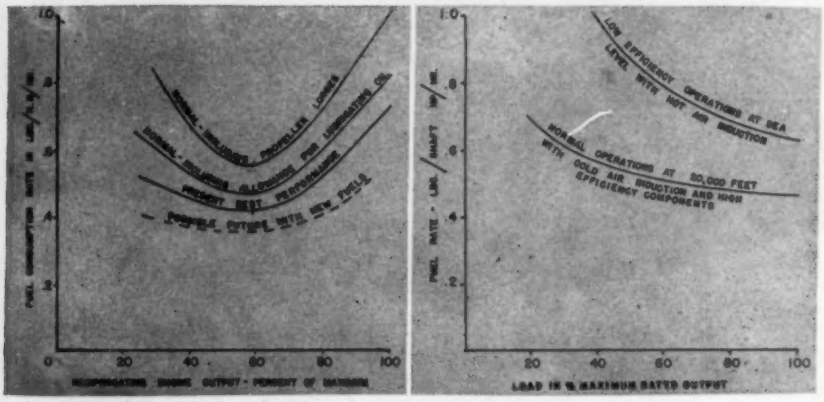
OLDEST ROTARY WING AIRCRAFT MANUFACTURING COMPANY

hind the geared turbine in payload carrying ability.

As was found in the case of the jet fighter, the jet bomber or cargo plane must be limited in use to relatively short range, very high speed and high altitude operations which can stand the expense of high fuel costs, until we have learned more about the aerodynamics of flight at speeds over 500 mph. The gas turbine with geared propeller on the other hand has immediate applications in all classes of service where requirements are much above 1,000 hp at usual flight altitudes, and should be ready for use when aircraft designs require 10,000 hp or more in a single engine unit.

	Gross Wt. (Lbs.)	Installed Power Plant Wt. (Lbs.)	Fuel Wt. (Lbs.)	Takeoff Thrust (Lbs.)
Conventional	120,000	20,800	40,000	28,000
Turbine Propeller	120,000	15,200	45,600	44,000
Jet Propelled	120,000	8,000	52,800	24,000

	Best Cruising Speed (mph)	Miles per Lb. of Fuel	Extreme Range in Miles
Conventional	250	0.120	4,800
Turbine Propelled (4 engines)	300	0.125	5,700
Turbine Propelled (2 engines)	280	0.145	6,600
Jet Propelled (2 engines)	350	0.050	2,650
Jet Propelled (4 engines @ 35,000 ft.)	460	0.066	3,500


LOW EFFICIENCY OPERATIONS AT SEA LEVEL WITH HOT AIR INDUCTION
NORMAL OPERATIONS AT 20,000 FEET WITH COLD AIR INDUCTION AND HIGH EFFICIENCY COMPONENTS
LOAD IN % MAXIMUM RATED OUTPUT

The relationship of fuel consumption in pounds per shaft horsepower hour to percent of maximum rated output for the reciprocating engine and gas turbine are shown by the above curves. Those at the left are for a conventional engine, and those at the right for a turbine with propeller drive.

New Brake Handguard Increases Production

A power brake handguard developed by John Flynn, a department foreman, has doubled production of clips for Wildcat fighters and Avenger torpedo bombers at the Bloomfield, N. J., plant of Eastern Aircraft Corp.

The device, which should prove equally valuable to manufacturing operations and airline maintenance and repair work, consists of two parts—a shield attached to the base of the brake which permits the material but not the operator's fingers to slide under the press, and a cable attachment activated by the power of the brake itself to carry the formed parts out of the press and drop them into a receptacle.

The cable is attached to the ram at one end of the brake and dropped to the base where it is directed along the channel of the female die by a pulley. Another pulley at the other end of the brake directs the free end of the cable to which a sash weight is attached off the brake to the floor. To remove the parts a piece of rubber is attached to this cable in a fixed position flush with the female die surface. When the ram ascends, it moves the rubber block forward to engage the formed material and push it down the channel and off the brake into a receptacle.

Speed and Safety— John Flynn, department foreman at the Bloomfield plant of Eastern Aircraft Corp. is shown with the power brake handguard and part removal device which he developed, and which is now doubling production of small clips for Wildcat fighters and Avenger torpedo bombers.

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A great airplane that flies first on

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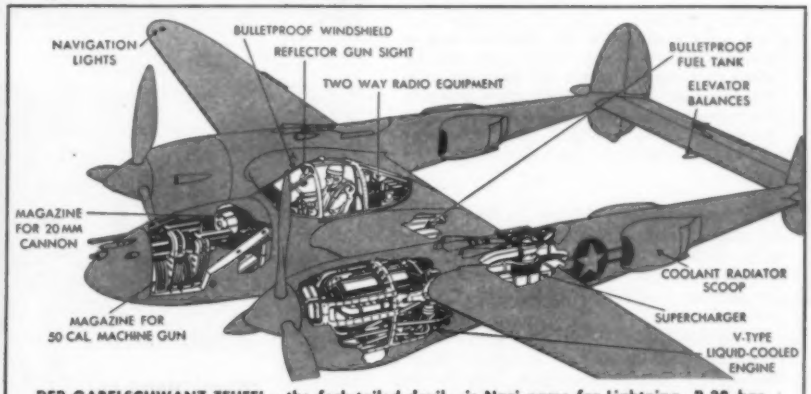
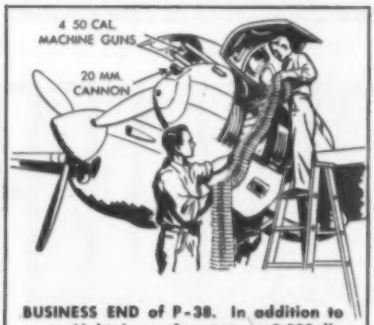
FIRST U. S. AIR FORCE PLANE to bag a Nazi in the European Theatre, P-38 has been bad news for Axis fliers ever since. Big (nearly as heavy as transports), Lightnings are fast, versatile, tough. To give such costly weapons the fine care they deserve, Lockheed Aircraft Corp. test-flies and delivers many Lightnings on Chevron Aviation Gasoline.



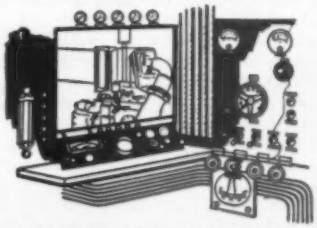
DER GABELSCHWANZ TEUFEL—the fork-tailed devil—is Nazi name for Lightning. P-38 has brilliant record as fighter, bomber, long-range escort and, with cameras replacing guns, as photo-reconnaissance ship. In developing high-octane fuel for ships like P-38, Standard of California scientists have learned much about "tailoring" gasoline to engine requirements—one reason why your postwar plane will perform far better on Chevron Aviation Gasoline.



BUSINESS END of P-38. In addition to guns, Lightnings often tote a 2,000 lb. block-buster under each wing. Pilots say Chevron Aviation Gasoline brings out best speed, smoothest performance of P-38.

COMFORT for pilot in high-altitude togs! Lightning can climb over 40,000 feet, has range greater than many transports, was first fighter to be delivered overseas under its own power. P-38 speed is over 425 mph.

Control panel of engine in which new Standard aviation fuels are carefully tested.



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Republic's 'Seabee' Undergoing Changes

A VISIT TO REPUBLIC Aviation Corp., Farmingdale, N. Y., reveals that the Seabee amphibian ultimately placed in the hands of postwar civilian flyers will be a far different, and probably a much better plane than that originally announced last December, but that it still is going to sell for as low as $3500. The company already has accepted orders for more than eight million dollars worth of these planes at this price.

Among the changes already planned are the substitution of a rectangular wing with single struts running to the fuselage for the present full cantilever tapered wing, redesign of the main landing gear and elimination of the wheel wells, and the use of a 185 hp instead of a 175 hp engine.

'Seabee' In Flight—Shown here is an experimental model of Republic's four-place, all-metal amphibian which will retail at $3500. Among the changes now being planned are a rectangular wing with a single support strut running to the fuselage and a landing gear in which wheel wells will be eliminated and the wheels will hang out from the fuselage on streamlined struts when in the retracted position. Note the steerable water rudder to provide added maneuverability on the water

In general, these changes can be attributed directly to the belief of Alfred Marchev, Republic president, that the key to postwar production of small aircraft for sale in the auto price field lies in the development of a production process which will sharply par costs by reducing the number of parts. In the case of the Seabee wing, for example, the new design consists of 21 parts as compared to 134 for that previously used. Similarly the number of parts in the horizontal stabilizer has been reduced from 42 to 10 by doing away with the conventional cross ribs and using instead a horizontal spar.

While cost accounting of these operations shows that materials, labor and overhead in the production of these two parts has dropped to less than $1 a pound as compared to prewar costs of from $3 to $10 or more a pound, these reductions have not been accomplished at the expense of either quality or performance. Both the stabilizer and wing sections have been static tested and have met full stress requirements with from 15 to 25 percent to spare.

In addition, many supplementary ad-

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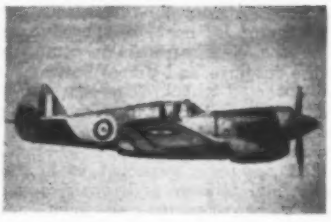
He looks well ahead

Roaring away into the darkness of the skies, tracking down with unerring accuracy the enemy intruder who dares to challenge our air-supremacy, "Cat's Eyes" finds his victim and, bringing into action the armoury of his aircraft, either forces the vain-glorious intruder to turn tail or crash to earth a shattered, burning wreck.



On the aircraft in which "Cat's Eyes" of the R.A.F. and his co-mates of the Dominion and American Air Forces carry out their job of work, Vokes Air and Oil Filters are fitted and have stood up to the severest test under the most gruelling conditions in all battle areas. There are many types in use. Vokes Air and Oil Filters for Aero Engines; Vokes Oil Filters for Main Circuit Filtration; Vokes Oil Filters for Gun Turrets also for Hydraulic Retractable Undercarriages. In aircraft factories Vokes Filters provide essential service for Test Bed Equipment. Vokes also manufacture Exhaust Silencers, Flame-Traps and Air Straighteners for Carburettors.

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Vokes are pioneers in the science of filtration. Today Vokes Air Oil and Fuel Filters are approved and adopted by British and Dominion Governments and are fitted for Aircraft of the U.S.A. You ask "Why?" Simply because every Vokes Filter does its job thoroughly, filtering all the air and all the oil all the time. The matter of installation of these filters has a fundamental effect on their performance and we design and make the special housing and ducting to give utmost efficiency. Consult Vokes on all your filtration problems. They make every type of filter for all classes of industry.

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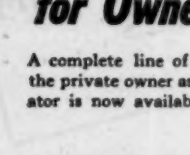

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Champion Plugs

Shielded or unshielded, Champion Ceramic Aircraft Spark Plugs have proven their quality in operation with the highest powered engines as well as in the lower output engines of trainers and light transports.

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Designed to meet the needs of any operator, these famous aircraft tires are now available for aircraft of all types.

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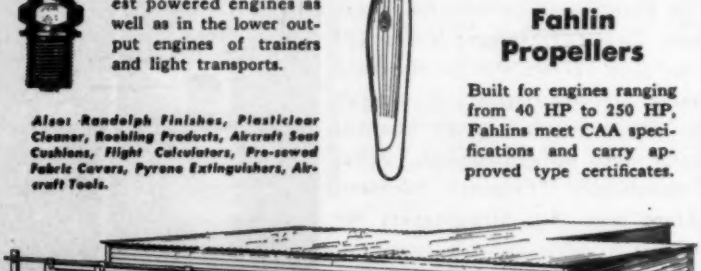
Built for engines ranging from 40 HP to 250 HP, Fahlins meet CAA specifications and carry approved type certificates.

Also: Randolph Finishes, Plasticlear Cleaner, Roebling Products, Aircraft Seat Cushions, Flight Calculators, Pre-sewed Fabric Covers, Pyrene Extinguishers, Aircraft Tools.



Otto Portable "T" Hangars

Here for the first time is a low cost, practical, portable "T" hangar for the light plane owner or fixed base operator. Large enough for any standard light aircraft, these hangars are designed so that they may be interlocked to form a hangar line of any desired capacity. Price, complete including doors, $575.00 f.o.b. factory. Write today for full information.

Aviation OTTO Corporation

BLOOMFIELD NEW JERSEY

141 Dealers in 12 Eastern States

Open for Fishing— The entire right front section of the Seabee opens outward to permit fishing from the front seat. The present interior arrangement as shown here will be modified with the elimination of the wheel wells to provide a wide rear seat for two persons instead of the single-seat jump seat combination now used.

vantages are being derived from Marchev's production engineering. The support strut or brace which will be used with the new wing also will serve, for example, as a guard to keep persons from inadvertently walking into the propeller. Doing away with the wheel wells and lifting the wheels straight up so that they stand out from the fuselage in retracted position permits widening of the rear seat to accommodate two persons and results in a lighter landing gear assembly. Yet there is no loss aerodynamically since the slipstream follows the contour of the fuselage and passes between it and the retracted wheel. The strut, of course, will be streamlined to provide a minimum of drag.

Still another advantage of this simplified design is expected to be realized in the maintenance and repair of the Seabee, with complete new parts and assemblies being available at such low cost that expensive and difficult repairs will be both unnecessary and uneconomic.

The Marchev philosophy of simplified production design does not stop with the airframe, but includes such items as power plants and instruments. He believes the former can be and will have to be made available at no more than $3 per horsepower. As to the latter, the Seabee will be equipped with a minimum complement necessary for safe operation, and even these may be of far simpler design than those now in use. For example, the Republic president believes that a simple ammeter of the type now used in autos will be satisfactory for the private plane, and that the precision type now being built for aircraft is superfluous.

Radio will not be included in the Seabee as standard equipment, but Republic hopes to make a radio installation available at slight extra cost, a set which follows the same principles of production engineering as the plane itself even though it is supplied by an outside vendor.

DOWN THE Manufacturing LINE

No Lay-Offs at Ryan

There has been no lay-off at the Ryan Aeronautical Co. and personnel is at an all-time high with the need for additional workers more critical than at any other time since the war began, the company reports. "Actually Ryan is one of the few plants in the entire West where cutbacks in employment have not been scheduled," T. Claude Ryan, president, states. "Our present backlog of orders exceeds $116,000,000 and is the highest in our history. To complete these huge orders, which will require heavy production schedules at least until the summer of 1946, we will need to employ more than 2000 additional workers yet this year."

CW at Buffalo Making Parts

The Buffalo plant of Curtiss-Wright Airplane Division will take on production of important parts for a Navy plane being manufactured at the Columbus, Ohio, plant, according to the "Curtiss Wright-er," plant publication. The parts will include fins, rudders, stabilizers, elevators, ailerons and flaps. Due to improvements in labor utilization and production methods, no increase in employment will be needed even though C-46 production will be maintained at peak level.

CIO Wins at Chance Vought

The National Labor Relations Board has certified the UAW-CIO as collective bargaining representative for certain specified groups of full-time salaried office, clerical, technical and professional employes of the Chance Vought Aircraft Division of United Aircraft Corp. at its Stratford, Conn., plant, following an election in which 1,159 votes were cast for the union and 339 against.

Convair Moves Stout Division

The Stout Research Division of Consolidated Vultee Aircraft Corp., which has been operated at Dearborn, Mich., since Nov. 30, 1942, will be moved to Nashville, Tenn., to utilize surplus facilities of the Nashville Division, according to I. M. Laddon, executive vice-president of Convair. J. M. Gwinn, Jr., division manager, will continue to head up the division at Nashville, and William B. Stout, director of research, will continue in that capacity although maintaining his residence in Detroit.

Alloy Firm Established

Establishment of a new plant for the flux brazing of aluminum alloys—Aluminum Brazing Co., 2041 E. Artesia Street, North Long Beach, Calif.—is announced. Arthur Brown, formerly with Consolidated-Vultee heads the engineering end of the partnership and Oscar A. Smith, Jr., is business manager.

Firestone Aircraft Store Opens

A new aircraft store incorporating the model showroom being made available to Firestone Tire & Rubber Co. dealers has been opened at the Cleveland Municipal Airport by Flight, Inc. It will sell aircraft tires, accessories and supplies to private flyers.

Streamlined Hiring at Hughes

A new streamlined hiring plan to aid war veterans has been instituted by the United States Employment Service and is being tested at the Howard Hughes Aircraft plant near Culver City, Calif. It involves a direct matching of a veteran's physical capacities with specific job requirements rather than emphasizing his physical limitations. Only four forms are needed to operate the new system with the existing personnel department at the Hughes plant. After further testing, full details will be made available to general industry by the Hughes Company and USES.

Hydrobals Standard Equipment

Float type Hydrobals for determining gross weight and center of gravity will be installed on PBM Mariners as standard equipment, according to Paul Piper, chief of weights at the Glenn L. Martin Co., and inventor of the device. At the same time procurement of a pressure type Hydrobal which measures water depth by means of hydrostatic pressure and makes it possible to read gross weight and center of gravity directly on sensitive pressure gages is being discussed with a New York manufacturer. The latter would be used on the JRM Mars.

Fairchild-Canada Contracts

Fairchild Aircraft, Ltd., Longueuil, P. Q., Canada, has become a sub-contractor for the F4U Corsair, and is now building major components for this Navy fighter.

Personal Radio—This combination transmitter-receiver designed and built by Rex Bassett, Inc., for light planes and personal aircraft measures only 4 x 4 x 8 in. and weighs only 3 lbs. 6 oz. Designed for battery operation, it has an output of 1.5 watts and provides sufficient range for normal lightplane flights. The transmitter is a "push to talk" controlled type on 3105 KC crystal. The receiver covers all range, weather and tower control frequencies. An instant "in-flight" antenna adjustment with output indicator tells the pilot when the antenna has been let out far enough to give maximum output. The new unit will fit an AN instrument hole if desired, and will sell for $100.

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"Raises the Roof" of fighter efficiency

A Stromberg Injection Carburetor is standard equipment in the fastest and highest climbing fighter in existence for this excellent reason: The Stromberg Injection Carburetor automatically and instantly compensates for changes in altitude, position, temperature and speed. *The gas mixture is always right for all flying conditions.* And keeping our pilots on top is only one of its advantages. It has notably increased flight range as well. This ability to get more miles from a given fuel load will naturally make these Bendix-built and designed carburetors vastly important to the cargo planes of the future.

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The Stromberg Injection Carburetor has considerably increased the *ceiling* as well as the range of fighting and bombing planes. And Bendix—with the finest research facilities in its field—continues to make improvements. Watch Bendix for the latest advancements in Injection Carburetion.

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Manufacturing Forward

Johnson Gillespie

Myron H. Buehrer, for 12 years sales manager of Boice-Crane Co., Toledo, has been elevated to general manager. He will continue to direct advertising and sales.

Col. Thomas A. Murphy, who served variously in civilian life as eastern division manager of Berry Brothers, assistant to the president of United Aircraft Corp., and works manager of United's Sikorsky division, has been assigned as AAF Plant Representative at Lockheed Aircraft Corp., Burbank, Calif.

Robert C. Treadwell has been named assistant general accountant of United Aircraft Corp.

Alan F. King, formerly of Vultee and Consolidated Vultee Aircraft Co., has been named director of economic research for Hughes Aircraft Co.

E. E. Binger, formerly director of personnel of Solar Aircraft Co., has been named director of industrial relations of the company's West Coast plants. **Robert C. Harlan** has been appointed manager of personnel at the Pacific Blvd. company and **Wilford Canavan,** formerly in the estimating department, was named employment manager.

Charles W. Miller, Jr., formerly president of Aircraft Enterprises, Inc., has been appointed to the engineering staff of Briggs Clarifier Co.

Graham Reid has been named acting purchasing manager of the Chance Vought Aircraft Division, United Aircraft Corp.

Anthony Burke, formerly public relations manager for the Varney Speedlines, has joined Hughes Aircraft Co. to coordinate public relations and publicity.

Robert J. Woods, previously chief design engineer in the Niagara Frontier Division of Bell Aircraft Corp., has been named special technical advisor to the president, Lawrence D. Bell.

Oliver F. Johnson, formerly executive officer for field operations with OPA, has joined Fairchild Camera & Instrument Corp., to do market research and postwar sales and distribution planning.

Gordon S. Gillespie, formerly secretary-treasurer of Diamond Iron Works, Inc. and Mahr Mfg. Division, Minneapolis, has been named comptroller and secretary for Adel Precision Products Corp., Burbank, Calif.

K. R. Jameson has resigned as vice president in charge of sales for Pacific Airmotive Division, and has established the firm of Jameson & Co. in Hollywood, to represent eastern manufacturers of aviation products.

Fred L. Meagher, until recently serving as contract coordinator of Jordanoff Aviation Corp., has been appointed vice president.

King Treadwell

Semrau Canavan

Harlan Binger

Hospers McCarthy

Barnes Reid

Meagher Burke

Malcolm S. Clark has been elected chairman of the board of directors of the Jacobs Aircraft Engine Co.

Claire L. Barnes has been elected president of Bendix Helicopter, Inc. He is also chairman of the board of directors.

Victor E. Semrau, formerly an officer and director of Kinner Motors, Inc., has been appointed secretary-treasurer and controller of Pacific Airmotive Corp.

M. J. Johnson, previously associated with Aircraft Parts Development Corp., has been appointed manager of aircraft sales for Elastic Stop Nut Corp. of America, with headquarters at the company's sales office in Newark, N. J.

Earl Herring, recently resigned as president and director of Kinner Motors, Inc. He will be succeeded by **John N. Gladden,** general manager.

Chauncey J. Lake has joined the advertising department of Jack & Heintz, Inc. He was formerly advertising and public relations director of Waco Aircraft Co.

Albert F. Polk, head of the engineering division of The Sheffield Corp. has been selected by the War Department for a special mission in the occupied territory on the Western Front.

Louis DeGarmo, executive director of News Associates, public relations firm in New York, has taken over the public relations work for Republic Aviation Corp., Farmingdale, L. I.

John J. Hospers, formerly field service manager, United Aircraft Corp., has been named sales manager. He is succeeded by **William H. McCarthy,** who has been assistant service manager.

Elden Beeks has been appointed labor relations manager, from his former position as manager of the personnel relations division at Republic Aviation Corp. **James Roach,** former personnel service manager, has been named manager of the personnel division.

Jesse Lane has been named supervisor of plant transportation at the Indiana Division of Republic Aviation Corp. **Lallie Richter,** of the same Division, is now supervisor of parts distribution. **Elwood Tenison** has been transferred to the experimental department where he is supervisor of production control.

Wellwood E. Beall, vice president-engineering of Boeing Airplane Co., has been elected to the Boeing board of directors, according to Boeing Plane Talk, weekly house organ. All other directors were re-elected.

Twin-Rotor Helicopter Developed by Kellett

FIRST public details on a new twin-rotor helicopter, the XR-8, designed and manufactured by Kellett Aircraft Corp., were revealed this week by W. Wallace Kellett, president. He emphasized that the XR-8 is a military experimental type and that the company is not contemplating a production program on this design although later models are expected to incorporate some of its features. No disclosure is justified at this time on the company's postwar commercial plans in the helicopter field, he said.

The most unusual feature of the two-place XR-8 is its rotor arrangement. The blades are arranged in two pairs of three each so that they overlap as they rotate in opposite directions somewhat in the manner of an egg beater. No tail rotor is required to counteract torque.

Among the advantages claimed for the XR-8 type of design are power efficiencies, good vibrational characteristics and reduction of both aerodynamic drag and power-transmission requirements. The XR-8 is said to be exceedingly maneuverable, having the conventional helicopter characteristics of vertical rise and descent, ability to hang motionless in flight at average altitudes, and to fly backwards or sidewise as well as forward.

The first flight of the XR-8 took place on Aug. 7, 1944 from a small 220x450-ft. area near the Kellett plant. Since then a substantial number of flying hours has been logged, and crosscountry flights have been made. On one occasion the pilot set the machine down in a cemetery in a heavily built up suburban area to wait until a sudden spring thunder storm passed over, and then resumed his flight without further incident.

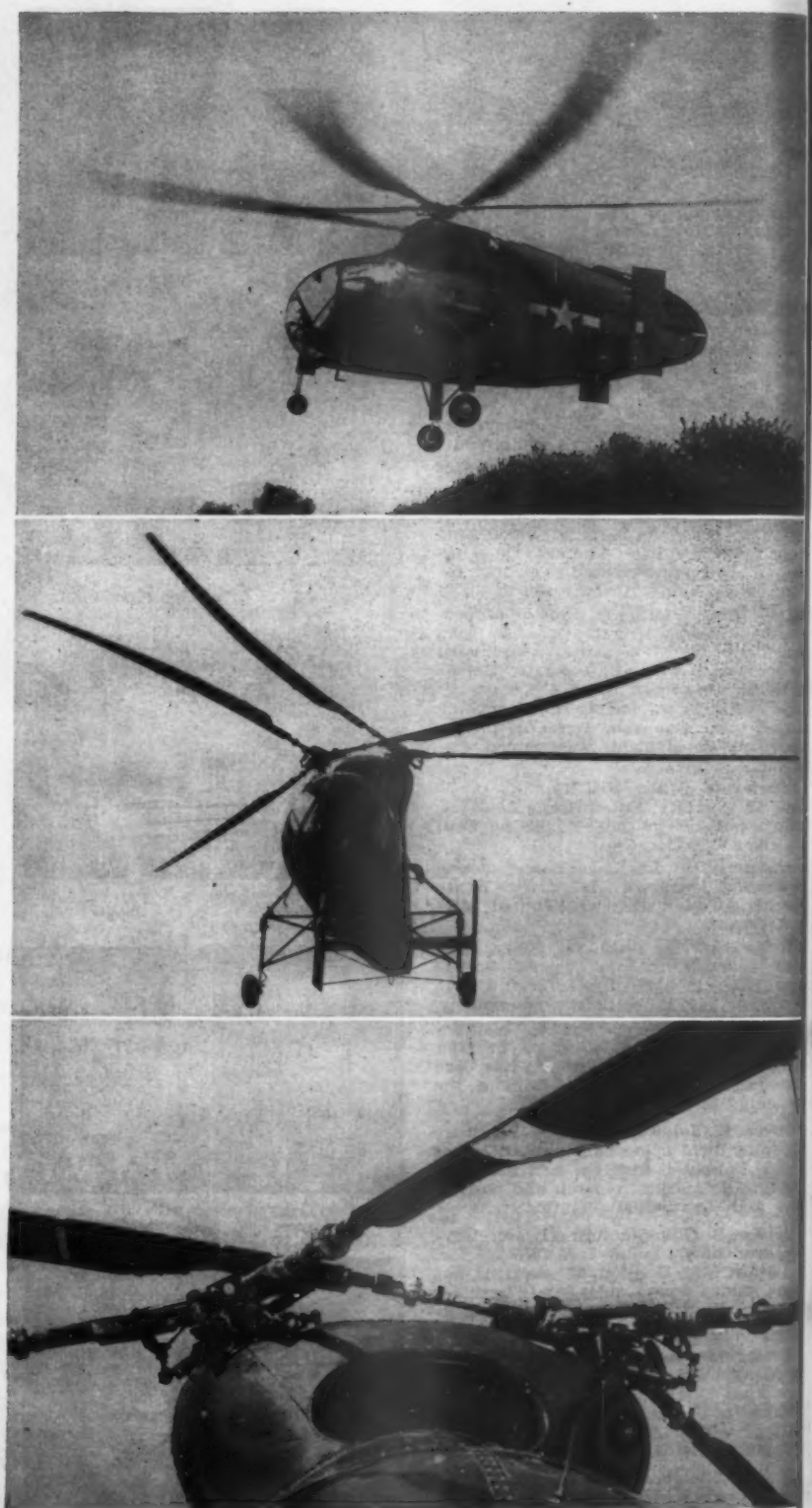
Kellett is basing its present program on the conviction that a very substantial amount of additional engineering and flight test experience will be required to establish the helicopter for everyday usefulness, although specialized applications are possible immediately. It is currently engaged in other helicopter projects while continuing the XR-8 program.

Specifications of the XR-8 are as follows:

Fuselage length	22' 7"
Rotor span	40'
Tread	10'
Height	11'
Blade area	84.5 sq. ft.
Power loading	12.1 No./h.p.
Blade loading	35.2 No./sq. ft.
Empty weight	2320
Gross weight	2975
Fuel	81.0 max.
	34.0 normal
Engine: Air-cooled X0-405	245 h.p.

Moscow-to-Washington In 35 Hours, 35 Minutes

The Air Transport Command has revealed, through a report to the Air Transportation Association, that a Douglas DC-4 plane, piloted by Maj. Ernest E. Dryer of Cleveland, former American Airline pilot, recently flew from Moscow to Washington in 35 hours and 35 minutes thereby establishing a new record. Other members of the crew included Capt. Harold N. Learned, of Oconomowoc, Wis., and 1st Lieut. Norman S. Portenoy, of New York.



Two top photos show the XR-8 in flight. Below, rotor head of the craft.

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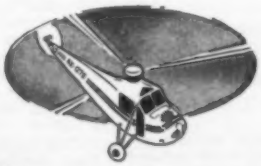

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Financial Reports

Bell Reports $3,756,975

Bell Aircraft Corp. reports earnings of $3,756,975 after provision for taxes in 1944 as against $3,062,414 in 1943. Gross sales were $317,473,879 as compared to $232,134,628. A provision of $600,000 for contingencies left a net profit transferred to surplus of $3,156,975. Earnings per share in 1944, before provision for contingencies, amounted to $9.53 as compared to $7.77 in 1943.

The balance sheet as of Dec. 31, 1944 shows working capital of $92,993,980. Current assets are listed at $87,746,561 of which cash in banks and on hand amounts to $27,262,797, cash in tax reserve accounts and U. S. Treasury Notes $7,441,960, U. S. Treasury securities at cost plus accrued interest, $3,031,664, accounts receivable $23,981,649, expenditures less a reserve of $2,574,600 to be reimbursed under CPFF contracts $22,191,305, and inventories $3,837,186. Other assets include: estimated postwar refund of excess profits tax, $3,040,000; fixed assets, $1,637,574; airplane design rights, drawings and patents, $1; and deferred charges, $569,844.

Current liabilities of $77,843,497 include: notes payable to banks, $5,000,000; advances on U. S. Government contracts, $37,600,281; accounts payable, $11,137,598; accrued wages, taxes, etc., $9,133,786; provision for 1942 renegotiation refund, $1,780,000; provision for estimated federal income and excess profits taxes, $13,191,832. The reserve for contingencies is listed at $3,600,000 and total capital stock and surplus at $11,550,483.

In the annual statement to stockholders, Lawrence E. Bell, president, reports that the company's engineers and craftsmen are particularly interested in the field of jet-propelled military aircraft and specialized training equipment. Following experimental work with its two place helicopter, the company is now developing a larger helicopter designed to meet military, commercial and civilian requirements, he revealed. Elsewhere in the report this is referred to as a machine which can be adapted for as many as five passengers.

NAL Stock Increases

National Airlines' board of directors has recommended an increase of the company's capital stock from 500,000 shares to 1,000,000 shares. Approval was also given to the acquisition of Caribbean Atlantic Airlines, subject to final approval by the Civil Aeronautics Board.

Delta 50c Dividend

Delta Air Lines will pay a 50¢ annual dividend on June 11 to stockholders as of May 25. The dividend, seventh annual one for the company, will be paid out of current earnings.

Warner Aircraft Earnings Up

Warner Aircraft Corp., Detroit, reports net income for 1944 of $234,497, or 47¢ each on 499,952 shares, compared with 1943 revised net income of $144,489, or 29¢ a share.

Packard Profits Reduced

Cutbacks in Rolls-Royce Merlin aircraft engines and Navy PT boat engines have reduced first quarter profits of the Packard Motor Car Co. to $655,420 as compared to $1,085,989 in the first three months of 1944. Sales and billings totalled $97,977,931, a reduction of $15,956,568 under first quarter volume last year.

Continental Motors Report

Continental Motors Corp. and wholly owned subsidiaries, reports net profits for the fiscal year ended October 31, 1944, of $5,853,472.53, after all charges, including depreciation, Federal Income Taxes, Excess Profits Taxes, and after allowing for proper reserves and charge-offs. Shipments for the fiscal year increased approximately 31% over shipments of 1943. As a result of Renegotiations, revised earnings for 1943 were $5,183,819.92.

GM Dividend

General Motors Corp. has declared a dividend of 75c per share on the outstanding common stock, payable June 9 to stockholders of record May 17. The regular quarterly dividend at $1.25 per share was declared on the $5 preferred stock, payable Aug. 1, 1945, to stockholders of record July 9, 1945.

Braniff Pays 15 Cents

Braniff Airways paid a dividend of 15c per share on May 25 to stockholders of record at the close of business May 10. This dividend is the same as that declared for each quarter of 1944.

United Aircraft $1 Dividend

United Aircraft Corp. has declared a dividend of $1 a share on common stock, payable June 15 to stock of record June 1. Last year the company paid dividends of $1.50 each in June and December.

Classified

AVIATION POSITION WANTED: Applicant seeking permanent position in aviation. Experience: three years mechanical engineering student; one year lay-out drafting and engineering sales; three years army pilot; two years airline pilot; three years test pilot. Presently employed as executive transport pilot in aviation war program. Interested in airlines, airports, manufacturing sales. Box 436, American Aviation, American Building, Washington 4, D. C.

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